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Muelleria

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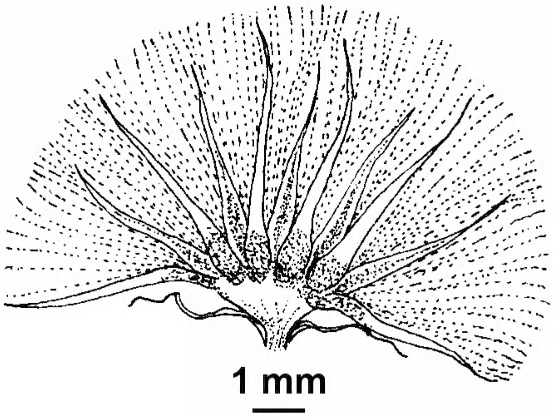
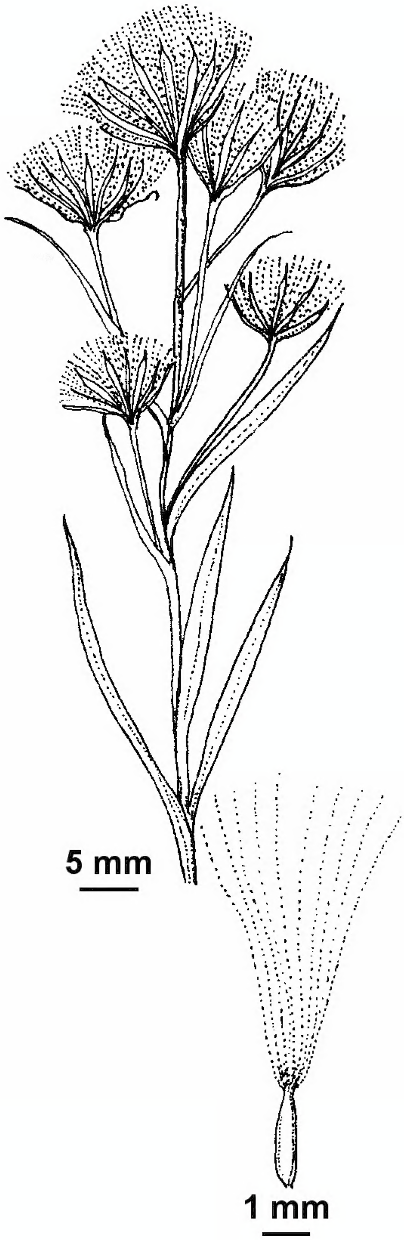
Vol 43, 2025





Erigeron conyzoides **F.Muell.,** ***Transactions of the Philosophical Society of Victoria*** **1: 105 (1855).**
Source: State Botanical Collection
Illustration: S. Clark
This illustration, showing habit, cypsela, and fruiting capitulum, was prepared for the *Flora of Victoria* by Suzanne Clark, botanical artist, who contributed illustrations to volumes III and IV of the flora. This taxon is synonymised with *Erigeron acris* in this volume.

Muelleria publishes research papers on Southern Hemisphere plant, algal and fungal taxonomy and systematics, particularly works relating to Australia. Acceptable submissions include: taxonomic revisions; phylogenetic and biogeographical studies; short papers describing new taxa (including global taxa of genera represented in the indigenous flora of Australia), documentation of nationally significant new records, or resolutions of nomenclatural matters; historical analyses relevant to systematics; and any research contributing to our knowledge of plant, algal or fungal diversity. Special issues or reviews will be considered after discussion with the Editor.

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Contents

ROYAL BOTANIC
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Volume 43, 2025

Where papers were published online prior to the publication of the printed volume, the publication date appears on the first page of the paper.

Contributed papers

Page

Olearia apiculata (Asteraceae), a new species endemic to the Central Tablelands of New South Wales 3
Andre Messina

Synonymisation of *Erigeron conyzoides* under *E. acris* (Asteraceae: Astereae), with a key to Australian *Erigeron* 9
Alexander N. Schmidt-Lebuhn, Stephanie H. Chen

Voyage in search of *Aseroe* (Fungi: Phallaceae): historical and nomenclatural secrets revealed and controversies solved for the iconic Australasian species *Aseroe rubra* 17
Luis A. Parra, Philip Rogosky and Tom W. May

A remarkable species of *Vigneronia* (Roccellaceae *s. lat.*) from the remote southern coast of Tasmania 72
Gintaras Kantvilas, Patrick M. McCarthy and Cécile Gueidan

Muelleria

43: 3–8

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ROYAL BOTANIC
GARDENS VICTORIA

Olearia apiculata (Asteraceae), a new species endemic to the Central Tablelands of New South Wales

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Abstract

Olearia apiculata Messina is described as new to science, with notes on the morphological features that distinguish it from *O. suffruticosa* D.A.Cooke, a species with which it has previously been conflated. *Olearia apiculata* accommodates the disjunct populations from New South Wales previously placed under *O. suffruticosa*, a taxon that is now once again regarded as being restricted to southeastern South Australia and southwestern Victoria.

Keywords: Taxonomy, *Olearia suffruticosa*, disjunct populations

Introduction

Olearia suffruticosa is a subshrub with a woody rootstock that occurs in seasonally swampy ground. This species is somewhat unusual for the genus *Olearia* in being subshrubby, with stems renewing from below-ground rootstock, and producing leaves with immersed glands. It is a highly restricted species; at the time of its description by Cooke (1985) it was known only from a few scattered populations in seasonal wetlands in the southeast of Australia, ranging from Reedy Creek to Canunda, in South Australia, and east to Dartmoor and Glenisla in the western Grampians in south-west Victoria.

In 1995, plants assigned to this species were recorded from a highly disjunct population in the Wallerawang area in the Central Tablelands of New South Wales. Subsequent to that collection, it was also collected further north near Lidsdale and in Turon National Park. The validity of these records as being native to that area have been confirmed by historic records from Wallerawang and Capertee (NSW 180685, NSW 180682). These New South Wales populations have always been regarded as taxonomically dubious owing to their large geographic separation from *Olearia suffruticosa* in South Australia and Victoria, along with differences in their habitat, and several different morphological features.

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Following considerable collection efforts in New South Wales over the past 15 years, there are now sufficient collections to allow for a critical review of the morphological differences exhibited across the entire distribution of *Olearia suffruticosa* within its current circumscription. Following inspections of collections held at AD, MEL and NSW (herbarium acronyms follow Thiers 2025), it was possible to confirm that the plants from New South Wales are consistently distinct in terms of habit, leaf, conflorescence arrangement, and size of capitula and fruits (Table 1). These distinctions, along with the large geographic disjunction, are sufficient to warrant the recognition of the plants from New South Wales at species rank.

Taxonomy

Olearia apiculata Messina *sp. nov.* (Figs. 1, 2a–c)

Type: **AUSTRALIA.** New South Wales, c. 10 km W of Capertee, Stockyard Gully, c. 300 m S of confluence with Turon River, Turon National Park, 16.v.2012, *R.L. Johnstone 3155, S. Clarke & C. Avery* (holo: NSW 894316).

Wiry subshrub to c. 70 cm high, glabrous, somewhat resinous. Stems striate, branched from base of plant, lower stems woody and spreading, upper stems slender and usually erect. Leaves sessile, alternate, clustered, spreading to ascending, narrow-oblong to linear, rarely oblanceolate, entire, compressed-terete, channelled above, strongly keeled below when dried, 2.5–8(–11) mm long, 0.5–1 mm wide, becoming smaller, solitary and ascending towards the ends of uppermost (flowering) branchlets, concolorous, with scattered immersed glands appearing as lumps in dried material, midrib and margins usually minutely and sparsely tuberculate; apex acute to acuminate, rarely obtuse, apiculate. Capitula terminal, solitary or with few heads forming a very loose corymbose panicle; involucre campanulate to hemispherical, 2–3-seriate; bracts graduating, 3–4 mm long, membranous, green, narrow-elliptic to lanceolate or subulate, with scattered immersed glands; margins densely fringed in upper third, apex acute, often purplish. Ray florets c. 15–22, ligules 5–8 mm long, mauve or white. Disc florets c. 16–28, yellow, sometimes turning pink on dried specimens. Cypsela ±cylindric, obscurely ribbed, 1–2 mm long, moderately to densely covered in white to fawn-coloured simple hairs, hairs to c. 0.4 mm long, usually not overtopping the base of the pappus; pappus in 1 series, often with a second row of shorter bristles, bristles c. 25–35, 2.5–3.5 mm long, white or fawn-coloured.

Phenology: Flowers October–May.

Representative specimens (19 examined): NEW SOUTH WALES. Wallerawang, *J.L. Boorman s.n.* iv.1901 (NSW!); Mount Piper - Wallerawang area, *S. Bell s.n.*, x.1995 (NSW!); c. 6 km SW of Capertee, Turon National Park, *S. Clarke 271*, 1.i.2011 (NSW!); Flanks of ridge above Cox's Creek, c. 16 km N of Sunny Corner, *S. Clarke 277*, 1.i.2011 (NSW!); 6–7 km SW of Capertee, on western flanks of Stockyard Gully, Turon National Park, *S. Clarke 285*, 1.i.2011 (NSW!).

Distribution and Habitat: Restricted to a few highly localised populations in the Central Tablelands of New South Wales in the Lithgow area north to Turon National Park. Occurs on slopes and flats near creek lines in open forest and woodland in shallow rocky soils.

Taxonomic notes: *Olearia apiculata* is regarded as a sister species to *O. suffruticosa*, which is itself closely related to *O. glandulosa*. All three species are united in having immersed glands in their leaves and bracts (Chen et al. 2024; Cooke 1985). It is unclear if these species have an association with *Olearia heloderma* Albr. & I.Telford, which also possesses leaves with immersed glands but is otherwise morphologically distinct. Molecular data presented by Chen et al. (2024) does not appear to support a close association between *O. heloderma* and *O. suffruticosa*.

Nesom (2020) described 10 new genera in *Olearia*, placing *O. suffruticosa* and *O. glandulosa* in the segregate genus *Eoglandula* G.L.Nesom – a superfluous name and synonym of the earlier name *Spongotrichum* (DC.) Nees ex Spach (Nesom 2021). This work has not been adopted here or more broadly in Australia as its conclusions are regarded as somewhat premature, being based on an incomplete and poorly supported phylogeny (Albrecht et al. 2024; Chen et al. 2024; VicFlora 2024). Most recently, a phylogenomic study by Chen et al. (2024) has refuted at least some of the genera proposed by Nesom (2020) – including *Eoglandula/Spongotrichum*, *Muellerolaria* G.L.Nesom and *Wollemiaster* G.L.Nesom – with most genera either not forming monophyletic clades or

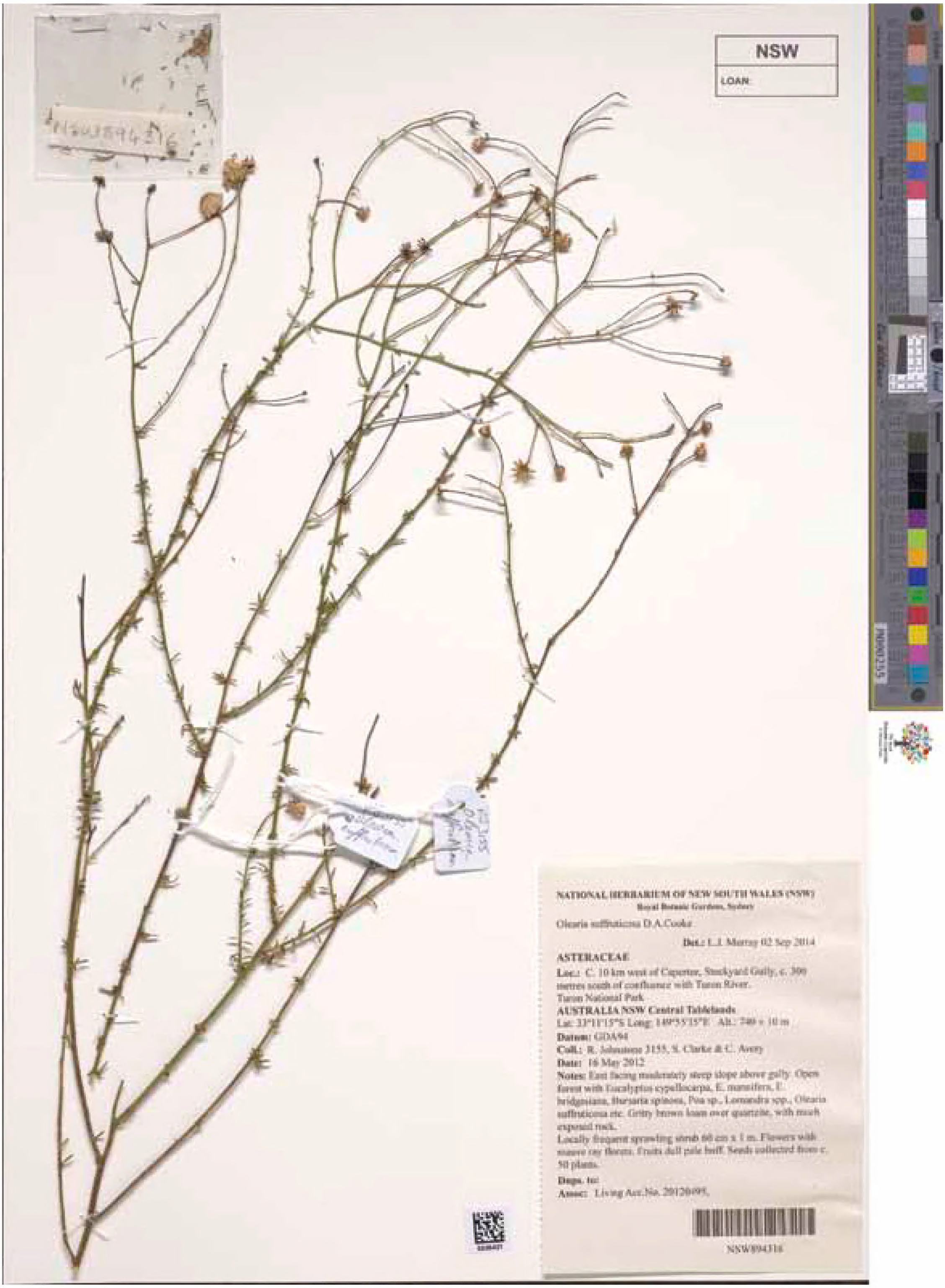
NSW
LOAN:
NATIONAL HERBARIUM OF NEW SOUTH WALES (NSW)
Royal Botanic Gardens, Sydney
Olearia suffruticosa D.A.Cooke
Det.: L.J. Murray 02 Sep 2014
ASTERACEAE
Loc.: C. 10 km west of Capertee, Stockyard Gully, c. 300 metres south of confluence with Turon River.
Turon National Park
AUSTRALIA NSW Central Tablelands
Coll.: R. Johnstone 3155, S. Clarke & C. Avery
Date: 16 May 2012
Dups. to:
NSW894316

Figure 1. Holotype of *Olearia apiculata* (NSW 894316). National Herbarium of NSW was accessed on 15 October 2024 from https://registry.opendata.aws/nsw-herbarium. Published under a Creative Commons BY 4.0 (CC-BY 4.0) license.

nesting within a broader clade that includes the type species of *Olearia* (*O. tomentosa* (J.C.Wendl.) DC.) and therefore most appropriately included in *Olearia s.s.* The placement of *Eoglandula*/*Spongotrichum* is inconsistent across the three phylogenies generated by Chen et al. (2024) and, on balance, the data presented suggest that it is reasonable to maintain *O. suffruticosa*, *O. glandulosa* and the newly described *O. apiculata* in *Olearia* rather than *Spongotrichum*.

Notes

A summary of characters used to distinguish this species from *Olearia suffruticosa* is given in Table 1, with some of the more microscopic features illustrated in Figure 2. The principal distinguishing features of *O. apiculata* are the much more woody and branched lower stems (c.f. *O. suffruticosa* which has slender, non-woody, relatively short-lived stems arising from a woody rootstock that are unbranched in the lower three-quarters, and periodically renewed), and the clustered leaves that are generally shorter, have an apiculate apex and are minutely tuberculate – particularly on the margins and midrib (Figure 2a).

In dried specimens of *Olearia apiculata*, the midrib becomes very pronounced, making leaves appear strongly involute rather than terete, and immersed glands are typically quite obscure, only seen on the midrib of very young leaves and on involucral bracts. In addition to these features, *O. apiculata* tends to have larger heads that are either borne in very sparse panicles or solitary, have distinctly fringed bracts (Figure 2b), and a relatively long pappus which is typically longer than the cypsela (c.f. pappus and cypsela length being ±equal in *O. suffruticosa*) (Figure 2c).

Furthermore, these two species are geographically and ecologically distinct. *Olearia apiculata* is restricted to the Central Tablelands district of NSW where it occurs on rocky, usually quartzite-derived soils in open forest and woodland. The closest population of *O. suffruticosa* occurs some 800 km to the southwest in southwestern Victoria, where it occurs in seasonal swamps in

Table 1: Diagnostic features of *Olearia apiculata* and *O. suffruticosa*.

Character	*O. apiculata*	*O. suffruticosa*
Stems	Lower portion of stems woody and branching	Stems slender, non-woody. Lower portion of stems unbranched
Leaves		
Arrangement	Mostly clustered	Solitary
Orientation	Spreading to ascending	Ascending to subappressed
Length	2.5–8(-11) mm	3–14(-24) mm
Apex	Apiculate	Rounded, not apiculate
Minute tubercles	Present on margins & midrib	Absent
Capitula		
Arrangement	Solitary or in very sparse, loose corymbose panicles	Corymbose panicles on short upper branches
Bract length	2–3 mm	3–4 mm
Bract margins	Densely fringed in upper third	Sparsely ciliate
Ligule colour	Mauve or white	White or pink
Cypsela		
indumentum	Not or hardly overtopping base of pappus, rarely to 0.4 mm	Usually overtopping base of pappus, c. 0.5 mm long
Pappus bristles	1-seriate usually with a second row of shorter bristles	1-seriate, without a second row of shorter bristles
Pappus length	2.5–3.5 mm long	1–2 mm long
Habitat	Open forest and woodland, shallow rocky quartzite derived soils	Sedgelands or wet heathlands in sandy or cracking clay soils

sedgeland and wet heathland on sandy and cracking clay soils.

The clustered leaves present in *Olearia apiculata* do not appear to be the retention of a juvenile state, but rather a unique character. This has been confirmed via plants grown by the South Australian Seed Conservation Centre from populations near Canunda and Lucindale, with plants from both sites producing solitary leaves from seedling stage (Plants of South Australia 2024). The clusters of leaves in *O. apiculata* are likely to be undeveloped lateral shoots, similar to those of *O. ramulosa* (Labill.) Benth. This species occurs in close proximity to *O. apiculata,* and the two may be confused due to similarities in leaf arrangement and scabrosity, as well as ligule colour. However, *O. ramulosa* may be readily distinguished by its setose stems, recurved leaf margins, and woolly leaf undersurface, along with a raft of other more subtle characters.

At the time of publication this species does not neatly key out in the New South Wales Flora Online

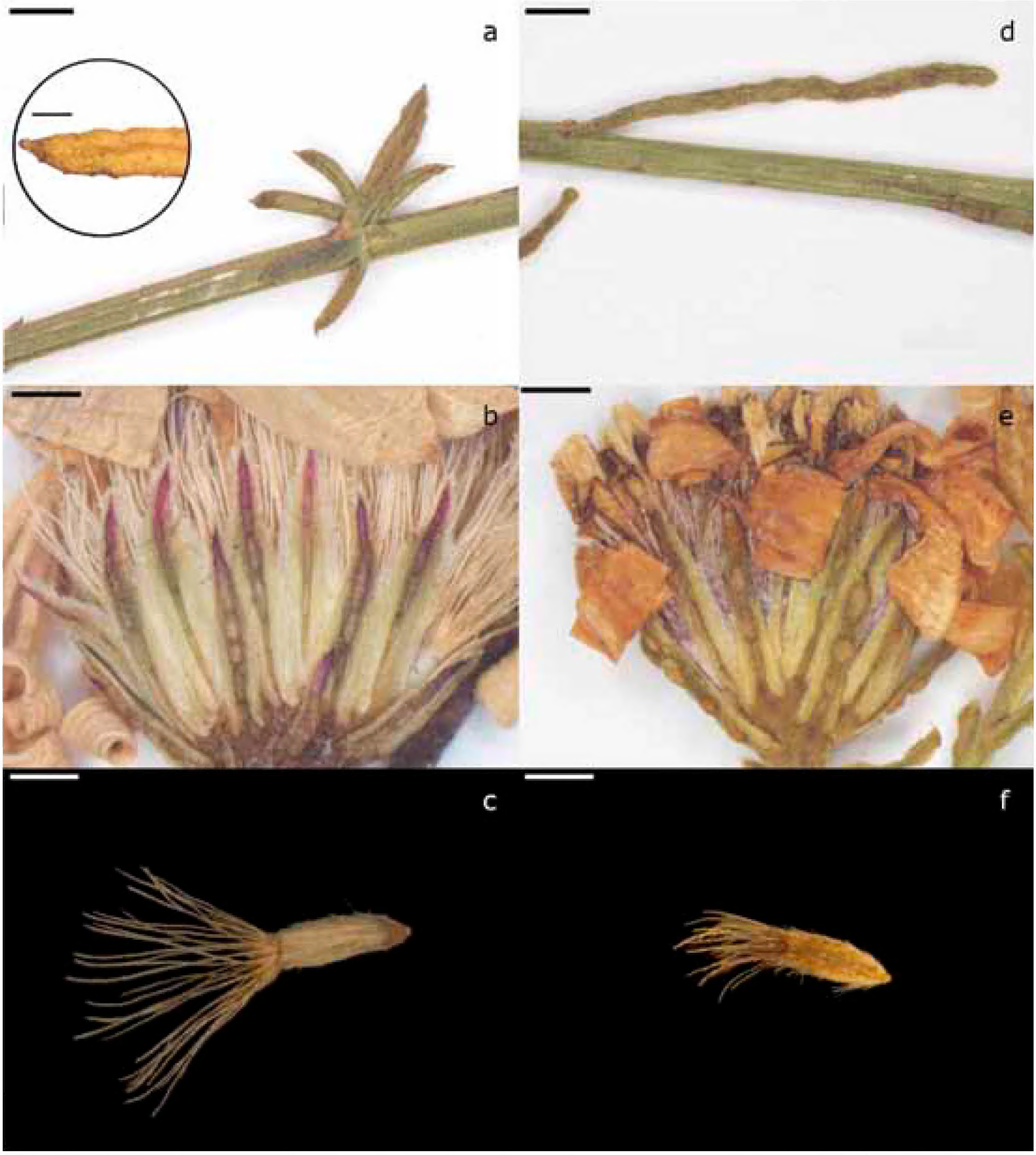

Figure 2. Comparative images of leaves, capitula and cypsela. **a–c** *Olearia apiculata* (NSW 894316). **d–f** *O. suffruticosa* (MEL 2296468). Scale bar: 2 mm in a (insert = 0.5 mm) and d; 1 mm in b,c,e,f.

(PlantNet 2024), as step 10 requires heads to be borne in leafy panicles. Both *O. apiculata* (as *O. suffruticosa*) and *O. brevipedunculata* N.G.Walsh can bear solitary heads, the latter taxon nearly always, so it is recommended that this portion of the key be changed to:

10 Capitula 13–45 mm diam.; leaves flat; mallee woodlands on the western plains 13
10. Capitula <16 mm diam.; leaves conduplicate to compressed terete or flat; on or east of the Great Dividing Range 11
11 Leaves flat, densely hairy .... *Olearia brevipedunculata*
11. Leaves conduplicate to compressed terete, glabrous, often with immersed glandular swellings 12
12 Leaves not apiculate, mostly >10 mm long; heads in compound corymbs; ray florets white .... *Olearia glandulosa*
12. Leaves apiculate, mostly <10 mm long; heads solitary or in very loose corymbose panicles; ray florets mauve to white .... *Olearia apiculata*
13 Disc florets ± 18; pappus 1-seriate, bristles ± 50 .... *Olearia muelleri*
13. Disc florets ± 21; pappus 2-seriate, bristles ± 74 .... *Olearia calcarea*

Conservation Status

A formal conservation listing under the EPBC act for *Olearia suffruticosa* is underway; this assessment currently includes *O. apiculata*. Accordingly, the assessment will require revision to account for the recognition of plants in NSW as a separate taxon. *Olearia apiculata* is highly localised and likely to require listing at both state and federal levels. No attempt has been made here to speculate as to the possible conservation status of this new species as a formal listing is likely to be forthcoming following this manuscript.

Acknowledgements

Dan Duval from the South Australian Seed Centre is thanked for sharing extensive notes and photos of *Olearia suffruticosa* in South Australia, along with his 10-cents on plants in New South Wales. This work could not have been performed without the help of curation staff from AD, MEL and NSW providing access to collections.

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Synonymisation of *Erigeron conyzoides* under *E. acris* (Asteraceae: Astereae), with a key to Australian *Erigeron*

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Introduction

Erigeron conyzoides F.Muell. is the only species of its genus currently considered native to Australia, after other species previously placed in *Erigeron* L. were segregated as *Pappochroma* Raf. (Nesom, 1998). It occupies a restricted range in the higher elevation parts of New South Wales and Victoria. However, it is phylogenetically isolated from all other native members of Asteraceae tribe Astereae and geographically isolated from its closest relatives, which occur in the northern hemisphere (Chen et al., 2024).

Erigeron conyzoides is also very rare to the extent that it remained, until recently, understudied. The species has not been collected in New South Wales since 1978 and is listed as Endangered under the Victorian Government's *Flora and Fauna Guarantee (FFG) Act 1988*'s Threatened List as of February 2024 (DEECA, 2024).

Recently, fieldwork and molecular phylogenetic analyses were conducted to support biological control research on *Erigeron bonariensis* L., of which *E. conyzoides* is the closest presumed native relative and thus a potential concern for off-target damage caused by biological control agents. Results indicated that, on the balance of evidence, *E. conyzoides* is unresolved as a native Australian species and synonymous with the

Abstract

Erigeron conyzoides F.Muell. is considered the only native Australian species of its genus but is geographically isolated from its close relatives in the northern hemisphere and phylogenetically isolated from its closest relatives in Australia. The very rare and apparently declining species was recently located during field work. Field observations, morphological study, phylogenomic analysis, and the correlation of its decline with the removal of grazing from alpine areas suggest that it is not likely to be a native species but a recent, disturbance-dependent introduction from the northern hemisphere. Here, *Erigeron conyzoides* is lectotypified and formally synonymised with *Erigeron acris* L. We also provide a description of the recently established *E. bellioides* DC. and a key to all species of *Erigeron* currently known to be introduced to Australia.

Keywords: Bitter fleabane, Compositae, nomenclature, taxonomy

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subarctic northern hemisphere taxon *E. acris* L. (Chen et al., 2025) and thus introduced.

Although it is difficult to confidently assign *Erigeron conyzoides* specifically to one of the subspecies of the diverse *E. acris* complex as recognised in recent regional taxonomic treatments (Olander & Tyler, 2017; Sennikov & Khozin, 2023), it shows mosaic-like morphological affinities with some subarctic to alpine subspecies including *E. acris* subsp. *politus* (Fr.) H.Lindb. (colouration of stems and phyllaries) and *E. acris* subsp. *droebachiensis* (O.F.Müll.) Arcang (capitulescence structure and number of cauline leaves). The exact provenance of the Australian plants in the northern hemisphere must therefore await a comprehensive taxonomic revision of the complex across its range, but their restriction to disturbed or anthropogenic habitats and decline in parallel with the removal of grazing from the Australian Alps suggest that it was almost certainly accidentally introduced to the Australian Alps by early European graziers (Chen et al., 2025). Its status in Australia should at best be treated as uncertain.

Here, *Erigeron conyzoides* is formally synonymised, the existing potential type material is discussed, and the name lectotypified.

During a visit to Cairns in 2023, the first author encountered *Erigeron bellioides* DC., a species originally from the Caribbean. Although recognised as introduced to Australia by the Census of the Queensland Flora (Brown, 2021), it is not yet part of the Australian Plant Census (accessed 19.ii.2025) and not covered by any identification keys in Australia. We therefore also provide a full description of *E. bellioides* and a key to all species of *Erigeron* currently known to be introduced to Australia.

Type material of Erigeron conyzoides

Confusion surrounding the type material and the type locality of *Erigeron conyzoides* has been caused by inconsistent collector notes. In the protologue, the type locality is given as "on the sources of the Murray and Snowy Rivers". Six herbarium sheets (or their images) were found that potentially represent type material, but none of them have label data matching the descriptive statement.

NSW 607559 bears a Mueller label with the writing "Tributaries of the Clarence River". Nicholas S. Lander added a note in 1974 (incorrectly cited as "1947" on the label) reading, "the locality on this specimen (in Betche's handwriting) is in error! This species is known only from the Southern Tablelands. It is quite possibly a part of the type collection." The sheet bears only two partial inflorescences and fragments; larger leaves and the main stems are absent.

K000885080 is likewise labelled as "Tributaries of the Clarence River". It bears another label reading "iii. p. 495", referring to the volume and page where the species was treated in Bentham's *Flora Australiensis* (Bentham, 1866). The sheet bears a single but large and richly branched plant with many capitula.

K000885081 is labelled "Berrima". It also bears a label referring to the *Flora Australiensis* but seemingly reading [volume] "iii. p. 494". A pencilled addition refers to the publication of an isonym (Mueller, 1856). The sheet bears two large plants, one of them with a few roots, with multiple capitula.

MEL 603814 is labelled "Berrima" and "ad torrentis alpium Australia" [at the streams of the Australian alps]. The sheet bears several discoloured stems, one of them with an unusually large leaf, but only few capitula.

MEL 2158934 is labelled "ad fluminis Snowy river ripas, hieme inundatus (ostium versus) Radius albus. Martio 54" [on the banks of the Snowy river, flooded in winter (towards the mouth), ray white. March 54]. A label was added by Jim H. Willis in 1950 reading, "F.v.Mueller does not mention 'towards the mouth of the Snowy' in his TYPE description. Did [sic] this information (unusual for an alpine plant) refer to the accompanying specimen or to some other plant, since misplaced?" Another label points at one of the stems on the sheet and reads, "a flowering branch was removed from this point (q.v.) and mounted separately as '*Erigeron Bonariensis* from the Australian Alps' (see specimen)". This sheet is MEL 2158932A, which has a label reading, "'Broken from the specimen which Mueller labelled 'Ad fluminis Snowy River ----- (ostium versus)' March 1854' (q.v.)", and which has since been re-determined to *Erigeron conyzoides*. The sheet MEL 2158934 itself bears one partial inflorescence with few capitula, a stem base with a few leaves, and some fragments.

Mueller's locality description as "on the sources of the Murray and Snowy Rivers" implies at least two gatherings from two different locations. It is likely that the "Berrima" mentioned on MEL 603814 and K000885081 refers to the Berrima Range and/or Berrima Creek, which are located at ca. 36.7816582 S 148.2307417 E, south of Thredbo at the border between New South Wales and Victoria and very close to the source of the Murray River (https://etaunknown.com/expeditions/murray-river/source, accessed 12 Apr 2024). Mueller visited this area in early 1854 (Eugenia Pacitti, pers. comm.). These sheets are therefore likely to be the material Mueller referred to when mentioning the Murray River in the description.

Since it was collected at the Snowy River, MEL 2158934 and its fragment MEL 2158932A are likely to be the material Mueller referred to when mentioning that river. Understandably, confusion has been caused by the mention of "ostium" [river mouth] on the specimen label of MEL 2158934. It seems likely that this word was written in error but then corrected to "sources" at publication. As noted by others on labels added later, the entity currently accepted as *Erigeron conyzoides* in Australia is an alpine species. It does not seem plausible that it would have been collected at the mouth of the Snowy River at the east Gippsland coast and then published in a paper with a title reading "Descriptive characters of new alpine plants". The reference to "Clarence River", which is in northeastern New South Wales, on two other sheets is equally implausible for the same reason, but as there is no reference to that river in the description of the species, they are at any rate less attractive candidates for lectotypification.

Under the assumption that the description of *Erigeron conyzoides* by Mueller refers to original material from two different gatherings, one at the source of the Murray River (Berrima), the other at the source of the Snowy River, MEL 2158934 from the Snowy River is here selected as lectotype because of the quality of the material, its placement at Mueller's home institution, and the unusually detailed label information that includes a month of collection and even the colour of the ray florets (Fig. 1).

Taxonomy

***Erigeron acris* L., *Sp. Pl.* 2: 863 (1753).**

***Type:* SWEDEN.** Herb. Linnaeus 994.16 (lectotype: LINN, designated by Huber, *Berichte des Geobotanischen Instituts der Eidg. Techn. Hochschule* 114: 44. 1993).

= *Erigeron conyzoides* F.Muell., Descriptive characters of new alpine plants, from continental Australia. *Transactions of the Philosophical Society of Victoria* 1: 105 (1855).

Type citation: On the sources of the Murray and Snowy Rivers, (4000 to 5000 feet).

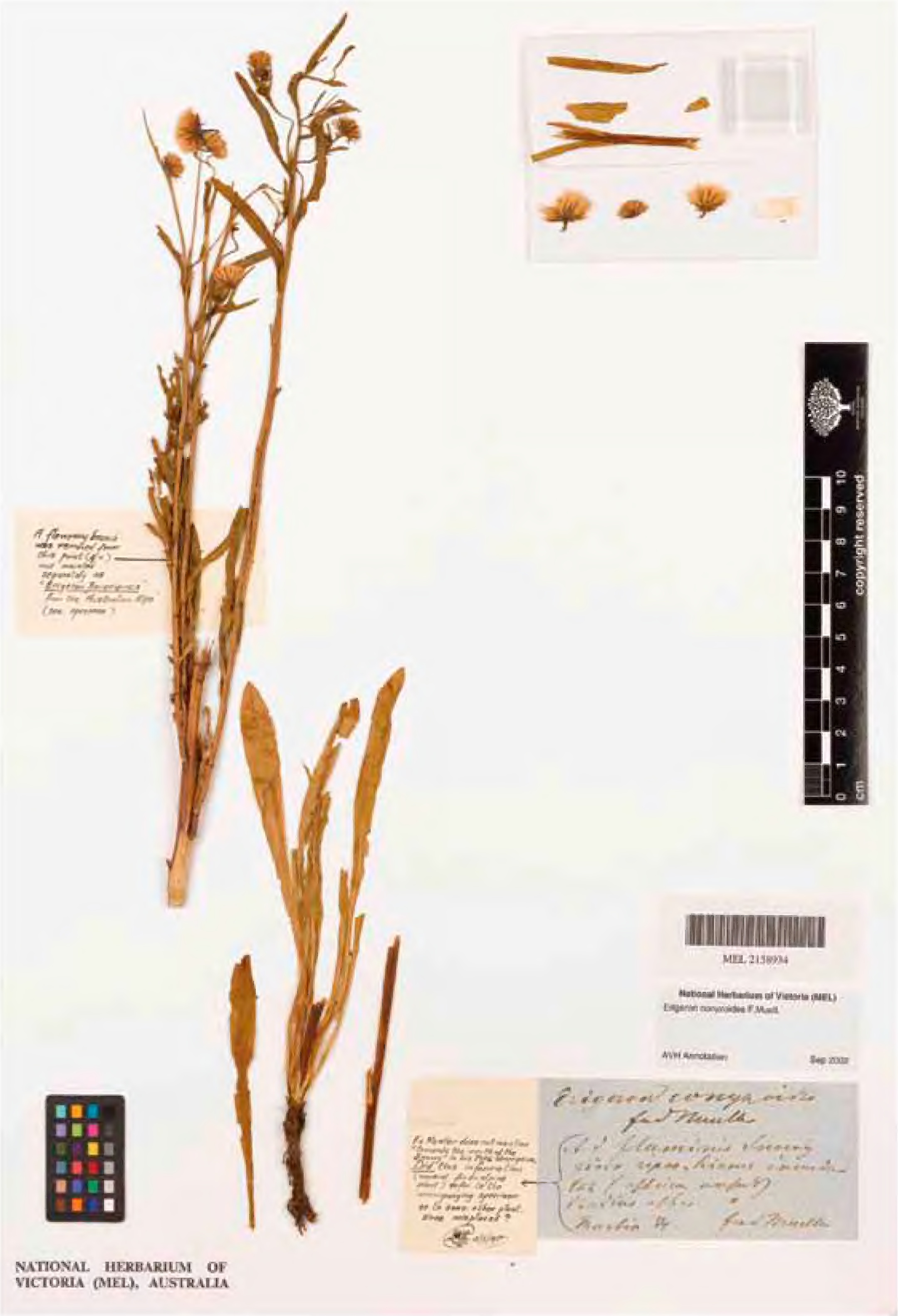
Lectotype** (designated here)**: Ad fluminis Snowy river ripas, *F. Mueller s.n.*, iii.1854 (MEL 2158934, isolectotype: MEL 2158932A).

= *Erigeron conyzoides* F.Muell., isonym, *Hooker's J. Bot.* 8: 146 (1856).

= *Erigeron conyzoides* F.Muell., nom. inval., nom. nud., Second gen. rep. Gov. Bot. veg. Colony. Victoria – Parl. Pap. Votes and Proc. Legislative Assembly: 12 (1854).

Perennial herb to ca. 50(–80) cm tall. Stems one to several per plant, erect, striate, usually deeply dark purple, glabrous or sparsely to moderately septate-hairy towards the top, branched into capitulescence in upper third to half. Leaves oblanceolate, to 120 mm long and 15 mm wide, decreasing in size towards stem apex; margins sharply but sparsely serrate to entire; subglabrous with sparse septate hairs especially on margins or moderately septate-hairy especially adaxially and on margins. Capitulescence terminal, narrowly paniculate to seemingly racemose in stems with few capitula, with ca. 8–30 capitula. Involucre of ca. three rows; phyllaries lanceolate, 4–8 mm long and c. 0.5–1.0 mm wide, with one prominent vein, dark purple, especially towards outer, glandular, stipitate-glandular, and/or septate-hairy; margins fimbriate. Florets trimorphic, differentiated into pistillate ray florets, pistillate filiform florets, and perfect disc florets. Ray florets thin, pure white when young but turning purplish with age, apically crumpled or rolled up when dry. Filiform florets similar to ray florets but not exceeding the involucre, with corollas shorter than their styles. Disc florets yellow turning pale brown with age, with five lobes. Cypselae ca. 2.0–2.5 mm long, compressed, light brown, pilose. Pappus of numerous fine, whitish, barbellate bristles 5–6 mm long.

***Specimens examined:* NEW SOUTH WALES.** Snowy Mountains, *W. Bäuerlen s.n.*, i.1890 (MEL 2158930); Near Kosciusko Hotel, *A.B. Costin s.n.*, iv.1947 (MEL 2158933); Ad torrentis alpium Australia / Berrima, *F. Mueller s.n.* (MEL 603814); Berrima, *F. Mueller s.n.* (K000885081); (Munyang) Mountains on the Upper Hume, *F. Mueller s.n.*, i.1874 (MEL 2158931);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MEL 2158934
National Herbarium of Victoria (MEL)
Erigeron conyzoides F.Muell.
AVH Annotation
Sep 2002
NATIONAL HERBARIUM OF
VICTORIA (MEL), AUSTRALIA

Figure 1. Lectotype of *Erigeron conyzoides*, MEL 2158934, reproduced with permission from the Royal Botanic Gardens Victoria.

Tributaries of the Clarence river, *F. Mueller s.n.* (K000885080, photo seen; NSW 607559, photo seen); White's River, aqueduct, *M.E. Phillips s.n.*, 10.ii.1960 (CBG 20388); Grey Mare Hut, 11 miles ENE of Khancoban, *R. Coveny 2800 & J. Pickard*, 14.iii.1970 (MEL 2158935); Snowy Mountains: Kosciusko National Park. 6.5 km ENE of Mount Kosciusko. Charlottes Pass, 1820 m alt., *D. Verdon 3221*, 9.ii.1978 (CBG 7800865); Kosciusko area, *D. Wimbush s.n.*, 1959 (CANB 58439). **VICTORIA.** Bogong High Plains, Rocky Valley dam, *G.W. Carr s.n.*, 6.ii.1985 (MEL 670729); East Gippsland. Cobberas No.2., W.side, *A.C.Beauglehole 36598 & E.W. Finck*, 27.i.1971 (CANB 558704, MEL 613571, MEL 1504168); Dargo High Plains, Lightbound Creek, *A.C. Beauglehole 41654*, 23.iii.1973 (MEL 1504169); Gippsland, *A.W. Howitt s.n.*, 1888 (MEL 2158938); Eastern highlands, gorge below Howitt Plains, *K.C. Rogers s.n.*, 29.i.1972 (MEL 600315); Eastern highlands, gorge below Howitt Hut, *K.C. Rogers s.n.*, 29.i.1972 (MEL 600723); Falls Creek, *A.N. Schmidt-Lebuhn 2138 & S.H. Chen*, 10.i.2024 (CANB 997869, MEL); Bogong High Plains, in the Basalt Hill – Falls Creek area, *E. Thomason 13*, 1.ii.2000 (MELU D 102645, photo seen); Snowfields, eastern slopes of Mt. Higginbotham, c. 500 m from summit, ca. 50 m below Great Alpine Rd and just south of double chairlift, alt. 1710 m, *N.G. Walsh 2430*, iii.1980 (CANB 721424, HO 562220 *n.v.*, MEL 2339440).

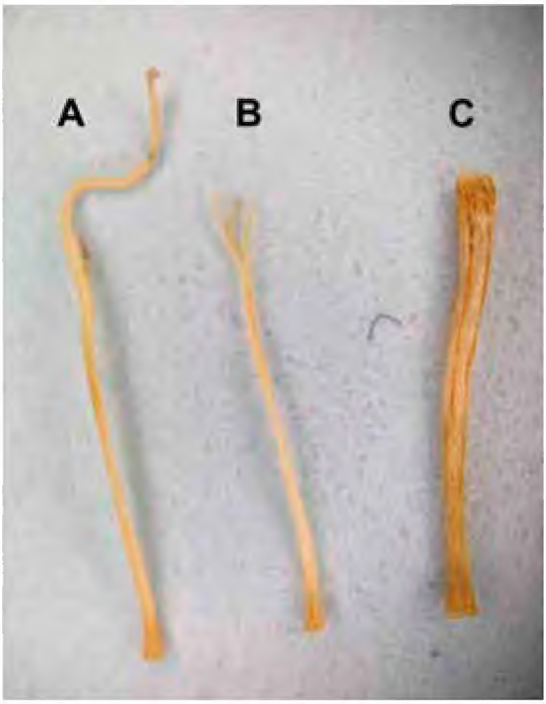

Figure 2. Trimorphic florets of *Erigeron* section *Trimorpha* (Cass.) DC. (*E. conyzoides*, *D. Wimbush s.n.*, CANB 58439). A. Ray floret. B. Filiform floret. C. Tubular disc floret.

Global distribution: The *Erigeron acris* complex occurs

Key to the species of *Erigeron* introduced to Australia

1 Florets trimorphic (Fig. 2): outermost are several rows of narrow ray florets, middle are filiform, and inner are disc florets; in Australia an alpine species ...... ***Erigeron acris*** L. (Fig. 3A)

1: Florets dimorphic: outer are either ray florets (in some species barely exceeding the involucre) or filiform, inner are disc florets; lower elevations 2

2 Plants sprawling or ascending, with stem either richly branching from base or not or barely branching; capitula +/- solitary 3

2: Plants erect, with flowering stems branching in upper part into a paniculate capitulescence 4

3 Richly branching from the base, sprawling, with leafy branches; larger stem leaves deeply lobed, smaller ones lanceolate to narrowly elliptic; ray florets white to pink, radiating, exceeding involucre by up to 10 mm; ornamental, occasional garden escape in temperate areas ...... ***Erigeron karvinskianus*** DC. (Fig. 3B)

3: Rosette plants with stems ascending and unbranched or rarely branching; rosette leaves spathulate with wide, flat petiole, and stem leaves reduced, obovate, sessile; ray florets white, not radiating, barely exceeding involucre; inconspicuous weed of moist places, Cairns and vicinity ...... ***Erigeron bellioides*** DC. (Fig. 3C)

4 Basal leaves to 250 x 35 mm, coarsely toothed to lobed; stem leaves much smaller, with margin +/- entire; capitula 8–12 mm long, only up to ca. 7 per capitulescence (but sometimes stem branched into several capitulescences); SE Queensland, NE New South Wales, and Victoria (presumed extinct in Tasmania) ...... ***Erigeron primulifolius*** (Lam.) Greuter (Fig. 3D)

4: Basal and stem leaves not strongly differentiated; capitula 3–6(–8) mm long, numerous; widespread species 5

5 Capitula 3–4 mm long; involucre subglabrous; outer florets rays with very short lip, barely exceeding involucre 6

5: Capitula 4–6 (–8) mm long; involucre hairy; outer florets filiform 7

6 Involucre cylindrical; involucral bracts narrow-oblong; outer florets with lip ca. 1 mm long ...... ***Erigeron canadensis*** L. (including *Erigeron pusillus* Nutt.) (Fig. 3E)

6: Involucre subglobular; involucral bracts narrow-triangular; outer florets with inconspicuous lip <0.5 mm long ...... ***Erigeron bilbaoanus*** (J.Remy) Cabrera (Fig. 3F)

7 Plants to ca. 1 m tall; adaxial/inner surface of senescing phyllaries whitish; pappus white ...... ***Erigeron bonariensis*** L. (Fig. 3G)

7: Plants to ca. 2 m tall; adaxial/inner surface of senescing phyllaries brownish; pappus light brown to straw-coloured ...... ***Erigeron sumatrensis*** Retz. (Fig. 3H)

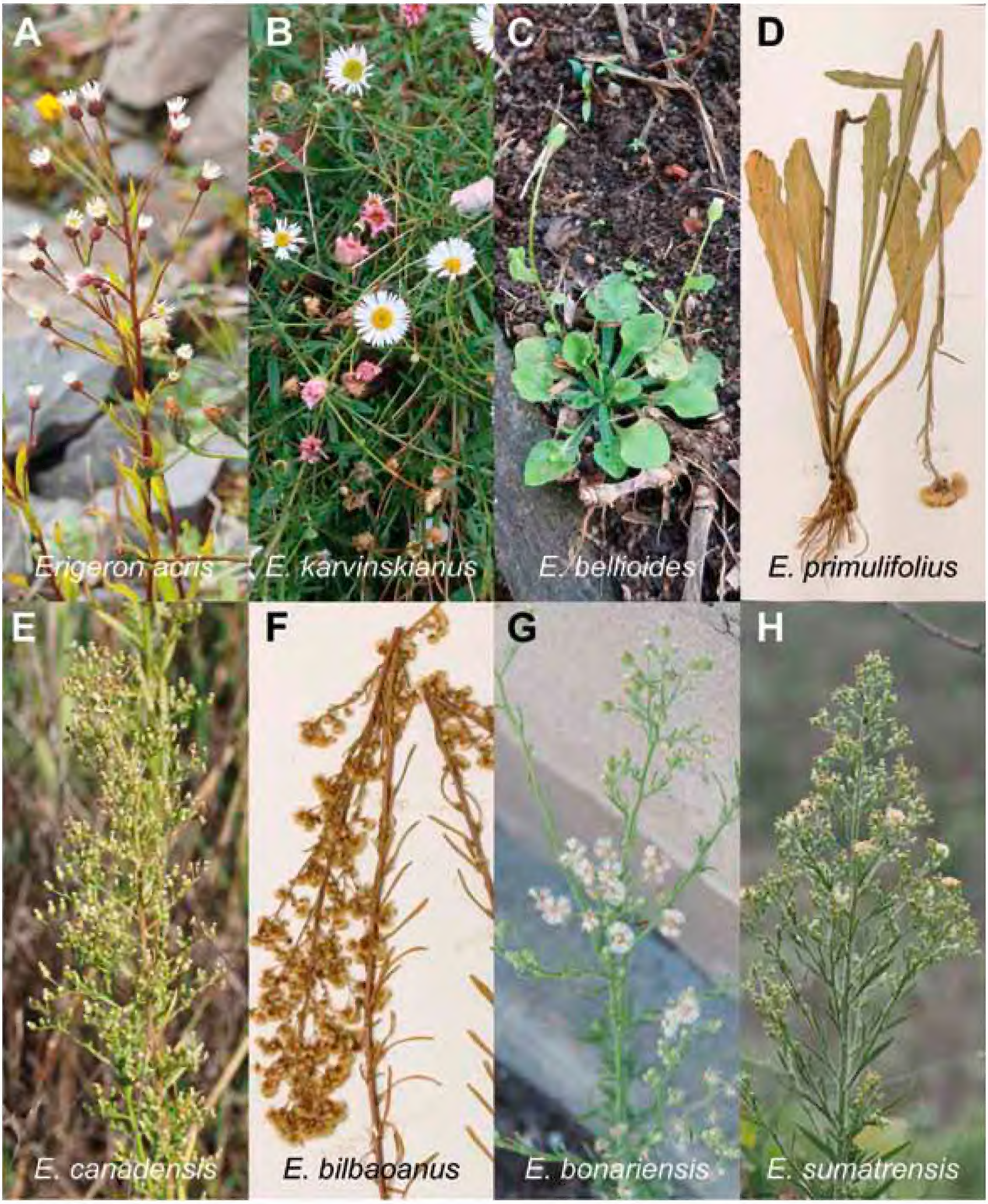
A
Erigeron acris
B
E. karvinskianus
C
E. bellioides
D
E. primulifolius
E
E. canadensis
F
E. bilbaoanus
G
E. bonariensis
H
E. sumatrensis

Figure 3. Habit of the eight species of *Erigeron* occurring in Australia. A. *E. acris*. B. *E. karvinskianus*. C. *E. bellioides*. D. *E. primulifolius* (*V. Stajsic 3906 & J. Eichler*, CANB 592670). E. *E. canadensis*. F. *E. bilbaoanus* (*I.C. Clarke 2822*, CANB 509676). G. *E. bonariensis*. H. *E. sumatrensis*. Images A-C, E, and G-H were taken by the first author during field work or vacations in Australia, and D and F by the imaging team of CSIRO's National Research Collections Australia.

across the northern hemisphere, including Canada, USA, most of Europe, Morocco and Algeria, and in Asia from western Russia and the Middle East to Japan and Kamchatka.

Distribution and habitat in Australia: Victorian Alps. It is unknown how many populations remain, but most recently collected only near Falls Creek. Presumed extinct in New South Wales, with no specimens collected since 1978. *Erigeron conyzoides* has been recorded from several sites in Kosciuszko National Park during surveys in 2019 (http://bionet.nsw.gov.au, accessed 22.xii.2023), but no vouchers appear to have been collected. During field work for this study, the species was searched for at one of those recorded locations, namely the area above Thredbo, but not found.

Collectors' habitat notes frequently describe the species as growing between rocks or on rocky substrates, e.g., "on basalt slope" (*B.G. Briggs 2547*, NSW 569129), "amongst volcanic rock" (*G.W. Carr s.n.*, MEL 0670729A), "rocky woodland" (*N.G. Walsh 847*, MEL 0628595A), and "basalt boulder field" (*N.G. Walsh 2430*, CANB 721424, HO 562220, MEL 2339440). Others describe heavily disturbed, anthropogenic sites such as a weedy road verge (*N.G. Walsh 4720*, MEL 2044671A). Sometimes, only forest or subalpine woodland are mentioned, without specifying the substrate (*R.G. Coveny & J. Pickard 2800*, MEL 2158935A, NSW 513746; *M.E. Phillips s.n.*, CBG 20388).

Notes on the epithet: Confusion is evident about the gender of *Erigeron* and the correct form of the epithet of *E. acris*. *Erigeron* was originally treated as neuter by Linnaeus, who accordingly used the name *E. acre* for this species. The current consensus is that *Erigeron* is male (Shenzhen Code, article 62.1), which implies the name *E. acer*, as the correct Latin male form of the adjective (male *acer*, female *acris*, neuter *acre*). However, botanical Latin has created its own traditions that may supersede the constraints of classical Latin, so that using *acris* for male genera is now considered acceptable, and *acer* somewhat archaic (Stearn, 2008: 11).

***Erigeron bellioides* DC., Prodr. 5: 288 (1836).**

***Type:* PUERTO RICO.** *C.L.G. Bertero s.n.* (G00494646).

Annual rosette herb to ca. 5 cm tall. Stems one to several per plant, ascending, unbranched or rarely sparsely branched, moderately covered with thin, straight, spreading or appressed hairs, with very reduced, obovate leaves in lower half. Rosette leaves spathulate, usually to ca. 15(–20) mm long (including petiole) and ca. 6(–9) mm wide, moderately covered with thin, straight to slightly curved, spreading hairs especially on petiole and margins; lamina suborbicular, sparsely crenate to ± entire; petiole flattened and usually longer than lamina. Capitula solitary or rarely 2 or 3 per stem. Involucre of ca. two irregular rows; phyllaries lanceolate, mostly ca. 2.0 mm long and c. 0.2–0.4 mm wide (some of the outer phyllaries much reduced in size), with one prominent vein, green, moderately covered with thin septate hairs; margins serrate, white. Florets dimorphic, differentiated into pistillate ray florets and perfect disc florets. Ray florets white, not radiating, barely exceeding involucre, with apex curling up as the capitulum matures. Disc florets yellow, with five lobes. Cypselae ca. 1 mm long, compressed, light brown, pilose. Pappus of numerous fine, whitish, barbellate bristles ca. 1.5 mm long.

***Specimens examined:* QUEENSLAND.** Cook district, Yorkeys Knob, *F.A. Zich 680*, 27 ix. 2013 (AK *n.v.*, BRI *n.v.*, CANB 822051, CNS 139962 *n.v.*); Cairns, urban area, *A.N. Schmidt-Lebuhn 2114*, 2023 (CANB 996023).

Global distribution: Native to the Caribbean. Introduced to USA, southeastern Asia, and many parts of the Pacific (e.g., Micronesia).

Distribution in Australia: Actively spreading around Cairns and vicinity and the Atherton Tablelands.

Acknowledgements

We thank Eugenia Pacitti for images of specimens at MEL and for information on Ferdinand Mueller's travels, Rebecca Le Get and Helen Barnes for assistance during a visit to MEL, and Brendan Lepschi for advice on typification and helpful discussions on other aspects of this work.

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Muelleria

43: 17–71

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ROYAL BOTANIC
GARDENS VICTORIA

Voyage in search of *Aseroe* (Fungi: Phallaceae): historical and nomenclatural secrets revealed and controversies solved for the iconic Australasian species *Aseroe rubra*

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Abstract

Relevant data on some crucial aspects of the life of French botanist Jacques-Julien Houtou de Labillardière are provided, especially as background to his role as the describer of the first non-lichenised fungus to be named from Australia: *Aseroe rubra* Labill., published in his *Relation du Voyage à la Recherche de La Pérouse* (*Voyage in Search of La Pérouse*). We discuss the precise location where the specimen was collected, Labillardière's library and knowledge of classical languages, and the etymological context for the generic name *Aseroe* Labill., typified by *A. rubra*. Comprehensive nomenclatural study of the generic name *Aseroe* and *A. rubra* is provided, establishing the correct place and date of valid publication of both names and confirming that Labillardière intended to spell the name as *Aseroe*, derived from the ancient Greek word for star – conventionally transcribed as *aster*, but by Labillardière based on the form '*aser*'. We compile all names published in the genus *Aseroe* and all names based on the name *Aseroe*, providing several corrections to orthography and publication details along with an assessment of the validity and legitimacy of the names. Having established the absence of any original specimen or drawing of *Aseroe rubra* via an exhaustive search of all herbaria where Labillardière collections are deposited, we lectotypify this name with the published illustration.

Key words: Gasteromycetes, Labillardière, mycology, Tasmania, book-publishing, nomenclature.

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[1] This publication is dedicated to our dear friend and colleague Philip Rogosky who passed away under tragic circumstances in early 2024. LAP and TM had extensive correspondence with Philip during the preparation of this manuscript and on other mycological matters, benefitting from his erudition, his tracking down of obscure literature and his thoroughness, always conveyed in a collegial manner and with a delightful sense of humour. Among a number of key contributions to this manuscript, Philip comprehensively tabulated the various editions of *Relation du Voyage à la Recherche de La Pérouse*.

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Introduction

The anemone stinkhorn or starfish fungus, *Aseroe rubra* Labill., was described by the French botanist Jacques-Julien Houtou de Labillardière (1775–1834) as a new species in a new genus from material observed in Tasmania during the voyage of *Recherche* and *Esperance* under the command of Rear Admiral Antoine-Raymond-Joseph Bruny [Bruni] d'Entrecasteaux (1737–1793). The purpose of the d'Entrecasteaux expedition was to search for the lost expedition headed by Jean-Francois de Galaup, Comte de La Pérouse (1741–?1788) (Labillardière 1800a).

Aseroe rubra was among the first fungi to be formally named from the Southern Hemisphere and the first non-lichenised fungus to be formally named, described, and depicted from Australia (May 2001). The receptacle (basidiome) has a very distinctive appearance, with bright red arms, bifid at the tips, arising from a hollow stipe, and a slimy gleba (spore mass) at the base of the arms. Presently, it is found in various regions including Australia, New Zealand, south-east Asia, Pacific islands, southern Africa, South America and also as an apparent exotic in North America and in Europe. In addition, within its natural distribution, it has the capacity to spread from natural forests to anthropised landscapes, such as garden beds with wood chip mulch. Due to its wide distribution and peculiar appearance coupled with the stinking spore mass, this fungus has often attracted attention from both mycologists and the public, and its morphological variability has originated at least 15 heterotypic synonyms along with numerous combinations (May *et al*. 2003).

Despite the more than two centuries of interest in *A. rubra*, questions remain as to where and when the name was published as well as concerning the spelling and etymology of the name *Aseroe*. The *Relation du Voyage à la Recherche de La Pérouse* (henceforth *Relation du Voyage*), the work by Labillardière in which *Aseroe* and *A. rubra* first appear, was originally published in three volumes, two of text and one atlas of plates. There were several subsequent editions in different languages and formats (including as a single volume). In the original edition, *A. rubra* is mentioned in two of the three volumes. Consequently, whether or not the *Relation du Voyage* is a single work published at the same time becomes important in deciding the date of valid publication under the current *International Code for Nomenclature of algae, fungi and plants* (hereafter abbreviated as 'ICN'; Turland *et al*. 2025).

Although the original spelling *Aseroe* was consistently used by Labillardière in all his works, in the mycological literature there are various orthographic/diacritic variants. When naming the genus, Labillardière (1800a) clearly stated that '*La disposition de ses rayons me l'a fait nommer aseroe*', i.e. 'the disposition of its rays made me name it *aseroe*' (literal English translation in Labillardière 1800b). By 'rays' Labillardière is clearly referring to the arms of the receptacle [we use the term 'rays' throughout below to match the historical usage]. However, no unequivocal root term in Latin or Greek readily suggests itself to account for the author's stated intention. Consequently, there has been much subsequent speculation about the derivation of the generic name *Aseroe* (Montagne 1845a; Schlechtendal 1847, 1861–1862; Saccardo 1888). Indeed, in order to match some suggested etymologies, several authors concluded that the original spelling must have been a typographical error.

The purpose of this contribution is to establish the place and date of publication of the name *A. rubra* along with the correct spelling and the etymology of the name *Aseroe*, based on close examination of the life of Labillardière, including his travels and his knowledge of classical languages. We have reconstructed the volumes that made up his own working library and consulted his own works, as well as numerous others dealing with his life. Furthermore, we investigate the typification of the name *A. rubra* based on a search of the databases of all herbaria where Labillardière's original material was deposited, and on further conclusive information acquired where relevant.

Methods

Names of algae, fungi and plants are given as the current name, following the Australian National Species List (https://biodiversity.org.au/nsl/).

Words from ancient Greek (referred to as 'Greek' throughout) are given in the text without any accents.

In this paper, the term 'transliteration' is used when the Greek words that are the origin of a name are transformed into their letter-for-letter Latin equivalent, while 'transcription' is used when the Greek words are

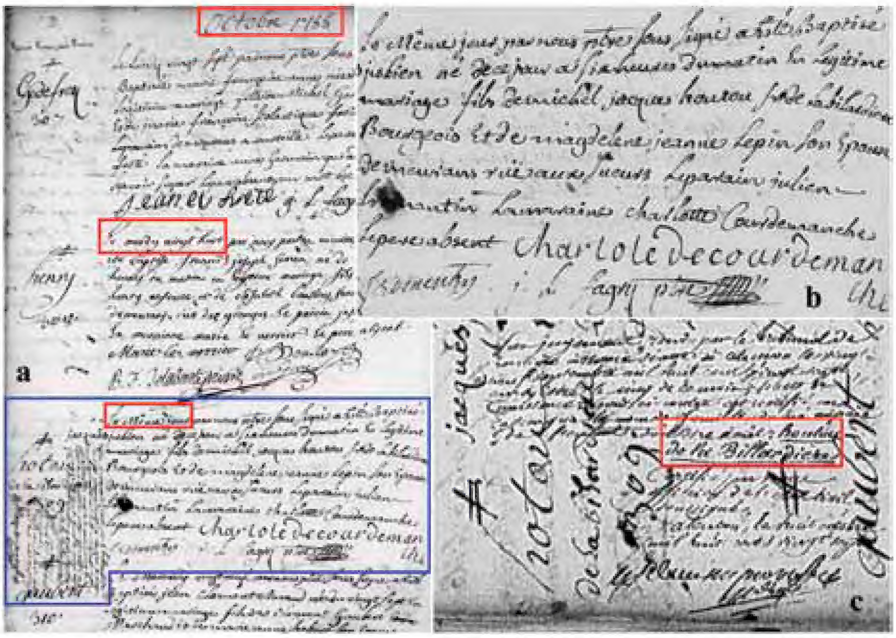

Figure 1. Alençon birth and baptism register. **a.** Full page with red frames indicating the precise date, Tuesday 28 October 1755. Entry 309, framed in blue, is Labillardière's birth record. **b.** Magnified image of entry 309 for Labillardière. **c.** Magnified image of the marginal note by which the surname was corrected to 'Houtou de la Billardière' (red frame).

converted into Latin with different letters. The choice of the letters in transcription is dictated by conventions employed in botanical tradition (Stearn 2004) and in general scientific terminology (Brown 1954; Nybakken 1960).

The Articles and Examples cited in this paper have been sourced from the current *International Code for Nomenclature of algae, fungi and plants* (Turland *et al.* 2025).

The original spelling of names not validly published has been corrected in accordance with the rules of the *Code* (Turland *et al.* 2025) only to show their correct spelling as if they had been validly published. In fact, there is no need to correct them, since names not validly published are not names under ICN Art. 6.3.

In the nomenclatural lists of names, under the correct name, the homotypic synonyms (preceded by symbol ≡) are arranged in chronological order followed by any invalidly published names (preceded by symbol –). Heterotypic synonyms, when cited, are preceded by symbol =.

Abbreviations of names of herbaria are taken from Thiers (2016+).

Abbreviations of authors of fungal names are taken from Stafleu & Cowan (2009) and from Index Fungorum (2009+a).

Labillardière, a fortunate botanist

From his birth to the exploration of the Pacific

Jacques-Julien Houtou de la Billardière was the ninth of fourteen children (Duyker 2003; Kantvilas 2007) in a family of minor landed gentry. He was born in Alençon (department of Orne, in Normandy, France) at six in the morning on Tuesday 28 October 1755 (Chevalier 1953; Carr & Carr 1981; Duyker 2003) [2]. On the local birth and baptism register (Orne Archives et Patrimoine 2000+) his surname was initially recorded as 'houtou de labilardière' in the main text, and 'hotou de labilardière' in the left margin, but a subsequent note, overlapping the original text, references a court ruling dated 29 September 1827 whereby the surname in the original birth record is corrected to 'Houtou de la Billardière', with two l's (Figure 1c).

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[2] Some authors indicate that Labillardière was born on 23 October (Flourens 1838) or 25 October (Stafleu 1966; Williams 2003), but in his birth and baptism register record (Fig. 1) it is clearly stated that he was born on 28 October [translated from French]: 'On this same date [28 October, 1755] I, the undersigned priest, baptised Jacques Julien, born on this day at six o'clock in the morning, legitimate son of the marriage between Michel Jacques Houtou, Sire of Labilardière [sic], citizen [of Alençon], and Magdelene Jeanne Lepin, his wife, residing in rue aux Sieurs, [present] the godfather Julien Fromantin [sic], the godmother Charlotte Courdemanche, the father absent. [Signed:] Charlote Decourdemanche [sic] / Fromentin / J.L. Fagry, priest.'

From 1780 (Chevalier 1953; Williams 2003) or 1791 (Carr & Carr 1981) onward, he elided the family name Houtou – sometimes erroneously spelled Houttou (e.g. Stafleu & Cowan 2009), Houtton (e.g. Cybertruffle 2005+; Index Fungorum 2009+b), or Houten/Houton (e.g. Mueller 1886) – choosing instead to identify by his family's toponym. This alternate surname appears in his works and letters as La Billardière until 1791 (Labillardière 1791), Labillardière from 1792 to 1807 (Labillardière 1792, 1807), and again as La Billardière from 1809 through 1824 (Labillardière 1809; Bourdet 1976), and at least until 1827, the date of its correction in his birth register). In this paper we adopt the spelling he chose to use on the title page of his *Relation du Voyage*, the work in which the genus *Aseroe* and its type *Aseroe rubra* were first described and illustrated[3]: Labillardière.

Jacques-Julien received his education at the formerly Jesuit *Collège royal* of Alençon, run since 1763 by secular Benedictine clergy. Duyker (2003) identifies his teacher of rhetoric, Abbé Lefèbvre, author of many poems in Latin and various Latin inscriptions at the new town hall of Alençon, as having played a crucial role in Labillardière's education in the classical languages.

By 1772, Labillardière was enrolled at the faculty of medicine in Montpellier, where he also studied botany under Antoine Gouan (1733–1821). He submitted his doctoral thesis at the University of Reims. After graduating in 1779 he moved to Paris where he made the acquaintance of René Louiche Desfontaines (1750–1833), a fellow medical student with a great passion for botany. They were both taught by Louis Guillaume Le Monnier (1717–1799), a professor at the *Jardin Botanique du Roi* and, at the time, one of the most influential scientists in France. Le Monnier and another professor at the *Jardin Botanique*, Antoine-Laurent de Jussieu (1748–1736), were able to source patronage for Labillardière's two-year visit to England in 1782 to record exotic plants cultivated there. This was where he met Joseph Banks (1743–1820) and James Edward Smith (1759–1828), the presidents of the Royal Society and the Linnean Society respectively. On leaving London, Labillardière headed for the French Alps, travelling through the mountains of the Dauphiné and Savoie. Shortly after, Le Monnier secured funding to enable Labillardière's campaign to explore Syria and surrounding areas. Departing in late 1787, Labillardière visited Corsica, Crete, Cyprus, Lampedusa, Sardinia, Syria, Lebanon, and perhaps the western coast of Turkey (Flourens 1838; Stafleu 1966; Carr & Carr 1981; Duyker 2003; Williams 2003; Kantvilas 2007). Just as he began the publication of his *Icones Plantarum Syriae Rariorum* from material collected in that region, his candidacy to accompany d'Entrecasteaux on the search of La Pérouse was put forward (Williams 2003).

Numerous events in the first 35 years of Labillardière's life that led up to his joining the d'Entrecasteaux expedition would prove to have a direct impact in enabling him to collect and describe *Aseroe rubra* from Tasmania. During his eight years at college in Alençon he acquired an excellent command of classical languages resulting in his fluent use of Greek and Latin in his botanical diagnoses and naming of new species (with *Aseroe* just one of many examples). His campaigns abroad afforded him great experience in collecting and preserving specimens in adverse conditions, with scarce material resources and during long journeys. His circle of friends, Jussieu, Le Monnier and André Thouin (1747–1824), another student of Jussieu's, ensured the success of Labillardière's candidacy to join d'Entrecasteaux's expedition as a naturalist (Carr & Carr 1981; Williams 2003). Ultimately, the personal friendships established in London with Joseph Banks and James Edward Smith were also vital in the return of his collections and drawings, which fell into Dutch hands just as the expedition was returning from the South Pacific to a post-royal France (Kantvilas 2007).

Historical events in Europe during the expedition

Understanding the *raison d'être* of the d'Entrecasteaux expedition to search for La Pérouse and the vicissitudes that occurred during the journey in which *A. rubra* was collected (along with thousands of other botanical, zoological, and ethnographic samples) requires an appreciation of the historical context of Europe at the time.

The tumultuous epoch during which the expedition took place was crucially punctuated by the French

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[3] Labillardière (with abbreviation Labill.) is also the standard spelling used by the IPNI (2023a) and Index Fungorum (2009+a), two sources from which the authors' standard forms of the International Code of Nomenclature for algae, fungi and plants are taken (Turland et al. (2025): Rec. 46A, Note 1).

Revolution, a period of great political and social instability, beginning with the establishment of the National Constituent Assembly on 9 July 1789, and ending with the dissolution of the *Directoire* and Napoleon Bonaparte's coup d'état, establishing the Consulate on 9 November 1799. During this period, most of Europe was gripped by a virtually continuous state of war, with countries constantly shifting alliances against one another.

In France, the National Constituent Assembly established itself as the legislative body, undermining many of the powers of King Louis XVI (1754–1793), and promulgated the first Constitution on 3 September 1791, recasting the country as a constitutional monarchy. Thus, it was the National Assembly that urged the king to launch an expedition to rescue La Pérouse. This new system of government proved short-lived, however: the dissatisfied populace soon revolted, and new elections were called, from which emerged The Convention, a new parliament that was to abolish the monarchy outright and proclaim the *République*. As part of this national reinvention, a new calendar was inaugurated, with 1792 as year 1 of this new era – accordingly, many of Labillardière's letters are dated with Republican calendar dates. On January 1793, Louis XVI was guillotined, as was his consort, Queen Marie Antoinette (1755–1793), in October of the same year. The great social and political divide that emerged in France between royalists and republicans was reflected in the factions dividing the participants of the d'Entrecasteaux expedition, and explains why, upon landing in Java and learning of the fate the king had faced at the hands of the revolution, the royalist d'Auribeau (see *Course to the Austral Pacific*) provided the Dutch captors, whose monarchy was still intact, with a list of republican crew members to be taken prisoner. The royal executions sparked a rush of European monarchies forming coalitions to declare war on France, lest the revolution spread throughout its nations, leading to seven wars against France between 1792 and 1815. The Convention's approval of a new Constitution in August 1795 conferred executive power to the *Directoire*. Meanwhile, Louis XVIII (1755–1824), uncle of Louis XVII (1785–June 1795; who had died in a republican jail), claimed the throne in exile. This led to competing French claims for Labillardière's collections when they were in British hands after the premature end of the expedition (see *Labillardière and his collections are reunited*), from both the *Directoire* government and from exiled King Louis XVIII.

Between the second half of the 18th and the beginning of the 19th century, any European country could be allied to another on one day, and its enemy the next. This instability was to greatly influence the events of the d'Entrecasteaux expedition, both in the party's foreign relations with the other countries they encountered, and its internal relations among the ships' officers and crew, between *royalistes* and *républicains*. When, in October 1793, the expedition reached Java (then Batavia and governed by the Dutch), only the republicans were taken prisoner; William V, Prince of Orange (1748–1806), ruled the Netherlands at the time and, in response to his refusal to recognise them, the republican government of France had declared war on the Netherlands on 1 February of that year. However, in January 1795 the republicans seized power in the Netherlands and the country became an ally of France, and for this reason the Dutch ships returning the French officers and cargo to Europe were captured by the British. The latter had been at war with France since 1763, and would remain so up until the Treaty of Amiens of 1802. It was at that time, during the two-year truce that briefly held across the Channel, that an exchange of prisoners and spoils between the two nations could take place.

This fraught time saw many countries indebted by long periods of war, creating a compulsion to colonise new lands for resources to bolster their status as world powers and to stave off internal revolts. The English, French, Dutch and Spanish, who had the best fleets of ships, organised great voyages around the globe to increase their overseas territories and find new foodstuffs, timber, minerals, and, despicably, humans to enslave[4]. As a result, during this period, natural history and geographical exploration experienced a moment of maximum fervour.

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[4] It was explicitly decreed in the National Assembly (Delattre 1886, our translation) that the d'Entrecasteaux expedition would see 'Europeans penetrate into the most remote latitudes [...] no longer to invade and ravage [...] no longer to take corrupting metals, [but with] the most sacred and respectable motive, the pious search of fellow humans [and] the most important corollary, to serve science and humanity at the same time'. This was in contrast to more predatory campaigns, still viciously active at the time.

Preparation of the d'Entrecasteaux expedition

La Pérouse took to sea from Botany Bay (Sydney, Australia) on 10 March 1788 and neither of the ships of his expedition, *Boussole* and *Astrolabe*, was ever heard from again. In early 1791, André Thouin, the treasurer of the *Société d'Histoire Naturelle*, who had been closely involved in the preparation of La Pérouse's expedition, proposed to the board of the *Société* to petition the National Assembly to find the two French frigates. After hearing the committees on agriculture, commerce and navigation, the National Assembly issued a decree on 9 February 1791 (Delattre 1886) urging the king to launch a search expedition of one or more ships, manned also by scientists, naturalists, and illustrators. The commanders of the expedition were thus imparted with the dual mission of searching for La Pérouse and, at the same time, to effect all manner of discoveries relating to navigation, geography, commerce, the arts, and sciences. The preamble of the decree closes with an explicit mention of the importance of discovering useful plants, stating that the search for La Pérouse was 'an action which would bring honour to the nation which recognises it should be undertaken...and the conquest of those useful plants which can make the life of the people easier and happier' (Delattre 1886, our translation). Towards the end of May 1791, the king authorised that d'Entrecasteaux be granted the rank of Rear-admiral to command the expedition, and he was assigned two ships (Williams 2003): *Truite*, renamed *Recherche*, and *Durance*, rechristened *Espérance*, to better reflect the mission they were charged with (Duyker 2003).

Among the royal orders, one explicitly stated that at the end of the campaign, d'Entrecasteaux was to collect all drawings, natural curiosities, descriptions, astronomical observations and diaries produced during the voyage and deliver them to the crown (Douglas *et al*. 2018). In addition, Thouin prepared botanical and horticultural recommendations for d'Entrecasteaux on how to make efficient employ of the naturalists and gardeners by avoiding overlapping duties, and by instructing the naturalists that they were obliged to make drawings of all objects related to natural history (Williams 2003).

On 25 July Labillardière wrote to Joseph Banks (henceforth Banks) asking for advice: 'I dare to hope, Sir, that you will be so kind as to share with me a part of the results of your observations. Without them, I might well neglect some preparations necessary for a fruitful voyage. Botany will be my principal occupation, but I endeavour not to entirely neglect the other aspects of natural history' [our translation]. Banks replied on 22 August: 'Take an enormous supply of the coarse paper in which plants are dried. I have often had several heaps of quires of plants drying at the same time, so large as to make it necessary to spread them out once a day, to prevent their heating by juxtaposition. Fruits and succulents could be preserved in the alcohol allocated to the sailors and each specimen could be tied up in linen and numbered by knots on the string and then stored in a small cask' (Duyker 2003; Barker 2003).

With the preparation of the two ships *Recherche* and *Espérance* well advanced at the end of August 1791, d'Entrecasteaux notified Labillardière to join him in Brest (France), where he arrived on 10 September. Labillardière toured the town in search of materials to preserve his collections, and ordered 22 reams of large-format, heavyweight drawing paper to be brought on board. The ships were ready to sail on 25 September, only awaiting favourable winds to leave port (Williams 2003).

Twelve scientists embarked on the expedition, many of whom were of differing political orientation than the royalist commanding crew. Onboard *Recherche* were three naturalists, Louis-Auguste Deschamps (1765–1845; royalist), Labillardière (republican), and Louis Ventenat (1765–1794; republican), who was also officially appointed chaplain of *Recherche*, alongside the gardener Félix Delahaye (1767–1829; royalist), the painter Jean Piron (1767–?; republican), the astronomer Bertrand and the hydrographic engineer in charge of cartography, Charles-François Beautemps-Beaupré (1766–1854; royalist). *Espérance* carried two further naturalists, Claude-Antoine-Gaspar Riche (1762–1797; republican) and Blavier, as well as the painter Chailly–Ely, the astronomer Dom Ambroise Pierson (1765–1799) and the geographic engineer Miroir-Jouvency (ca. 1754–1798). The astronomer Bertrand, the naturalist Blavier and the painter Chailly–Ely did not complete the full campaign: they were discharged at the ships' stopover in Cape Town for breaches of discipline (Stafleu 1966; Carr & Carr 1981; Duyker 2006; Mulvaney 2007a). It is notable that three of the naturalists who continued the expedition, Labillardière, Deschamps and Riche, were also doctors of medicine.

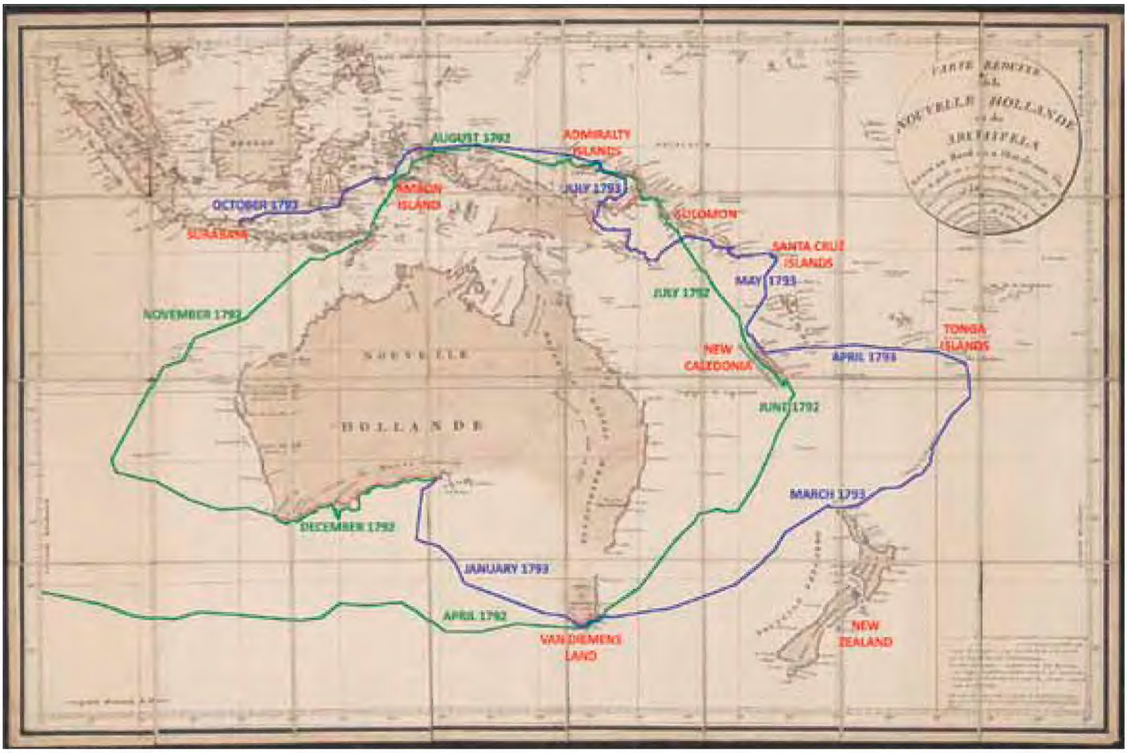
AUGUST 1792
ADMIRALTY ISLANDS
AMBON ISLAND
JULY 1793
OCTOBER 1793
SURABAYA
SOLOMON
SANTA CRUZ ISLANDS
MAY 1793
JULY 1792
NOVEMBER 1792
NOUVELLE
HOLLANDE
NEW CALEDONIA
TONGA ISLANDS
APRIL 1793
JUNE 1792
MARCH 1793
DECEMBER 1792
JANUARY 1793
APRIL 1792
VAN DIEMEN'S LAND
NEW ZEALAND
NOUVELLE HOLLANDE

Figure 2. Beautemps-Beaupré's summary map of the route taken by the expedition during 1792 (green) and 1793 (blue), held at the National Library of Australia, Canberra (Trove 2009+a).

Course to the Austral Pacific

The expedition set sail from Brest on 29 September 1791 for a long journey to the South Pacific (Figure 2). Once at sea, d'Entrecasteaux opened the envelope with the orders and named Alexandre d'Hermivy d'Auribeau (1758–1794) captain of *Recherche* and Jean-Michel Huon, Chevalier de Kermadec (1748–1793) captain of *Espérance* (Carr & Carr 1981). *En route* to Tasmania, then known to the expeditioners as '*Terre de Diémen*' (Van Diemen's Land), the ships made two stopovers to replenish their provisions. In both ports of call, first Santa Cruz de Tenerife (Canary Islands, Spain) and then Cape Town (South Africa), Labillardière collected botanical specimens. However, for lack of space, d'Entrecasteaux ordered Labillardière to leave the Tenerife and South African collections with the French *chargé d'affaires* at the Cape for delivery to France. Labillardière never recovered them[5] (Carr & Carr 1981).

On 28 March 1792, the expedition reached Île Amsterdam (Amsterdam Island) in the southern Indian Ocean, where they did not disembark, heading instead to Van Diemen's Land to stock up on fresh water and to repair the ships (Duyker 2003; Williams 2003). After rounding the 'Southwestern Cape', they planned to anchor in Adventure Bay, which until then was thought to be part of mainland Tasmania, but when they missed Penguin Island located at its southern end, they realised they were not in Adventure Bay, but had found a calm embayment they named Recherche Bay with two inlets which they named *Port du Nord* and *Port du Sud* (Duyker 2003; Williams 2003). The ships anchored on 23 April at *Port du Nord*, today known as Pigsties Bay (Duyker 2003), where they became the first French expedition to land and collect plants in Tasmania[6], preceded

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[5] Labillardière's collections were taken by the English and returned by ship of war to London in 1798, where they were purchased by Aylmer Bourke Lambert (1761–1842) (Don 1828). In a letter to Lambert from Paris on 4 April 1803, Labillardière explained that he had collected for a month at the Cape, and that the sale had dispossessed him of the greater part (Miller 1970), but nothing suggests that the collections were returned to him.

[6] There were two French expeditions to the Pacific before the d'Entrecasteaux expedition, the Bougainville round-the-world expedition of 1767–1768, and the La Pérouse expedition of 1785–1788, but neither landed in Tasmania.

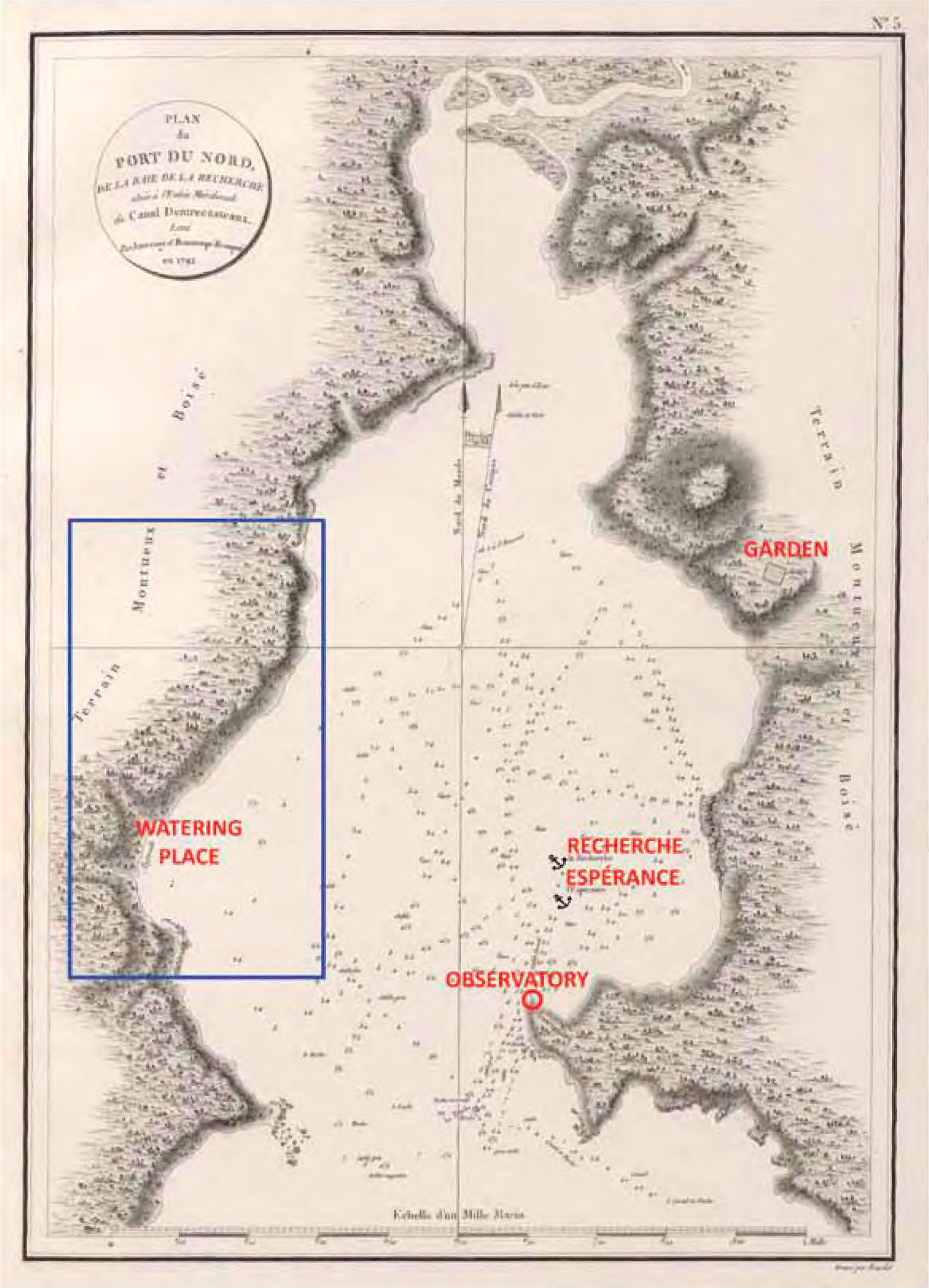
N° 5
PLAN
du
PORT DU NORD,
DE LA BAIE DE LA RECHERCHE
Canal Dentrecasteaux.
Terrain Montueux et Boisé
Terrain Montueux et Boisé
GARDEN
WATERING PLACE
RECHERCHE
ESPÉRANCE
OBSERVATORY
Echelle d'un Mille Marin

Figure 3. Jouvency and Beautemps-Beaupré's map of the *Port du Nord* (Trove 2009+b), with the watering place marked '*aiguade*'.

only by three English expeditions that collected on Bruny Island[7] (Kantvilas 2007). That same day, and the next, Labillardière made several botanical excursions, progressively exploring the forests on the eastern shore of the inlet. However, on 1 May, he learned that some of the ships' boats would land on the west bank of the inlet to stock up on fresh water, and he joined the excursion. Once on land, Labillardière moved northwards along the shoreline taking advantage of the low tide, occasionally entering the interior of the forest and in one of his incursions he found a star-shaped fungus emerging from the moss which he named *Aseroe rubra*, the first non-lichenised fungus discovered in what is today Australia, later stating in his account of the mission that the genus name *Aseroe* was related to the arrangement of its rays (Labillardière 1800a).

We can identify quite precisely the place where Labillardière found *A. rubra* thanks to his account in *Relation du Voyage*, and to the excellent cartography carried out by Charles-François Beautemps–Beaupré, the hydrographic engineer onboard *Recherche*. On his map of *Port du Nord* (Figure 3), the water supply point on the west shore is marked with the word '*aiguade*' (watering place), and Labillardière describes the finding of *A. rubra* just after describing a species of crab living on the shore, which indicates that it was not very far from the coastline. At the point where Beautemps-Beaupré wrote '*aiguade*' there is currently a settlement named Recherche, so Labillardière found *A. rubra* somewhat to the north of Recherche, and not far from the shore of the bay (Figures 4–5).

After spending about a month in Recherche Bay, the expedition set out north along the coast, thus discovering that Adventure Bay was on the eastern side of a separate island off Tasmania which they named Bruny Island, and the passage that separates it from the

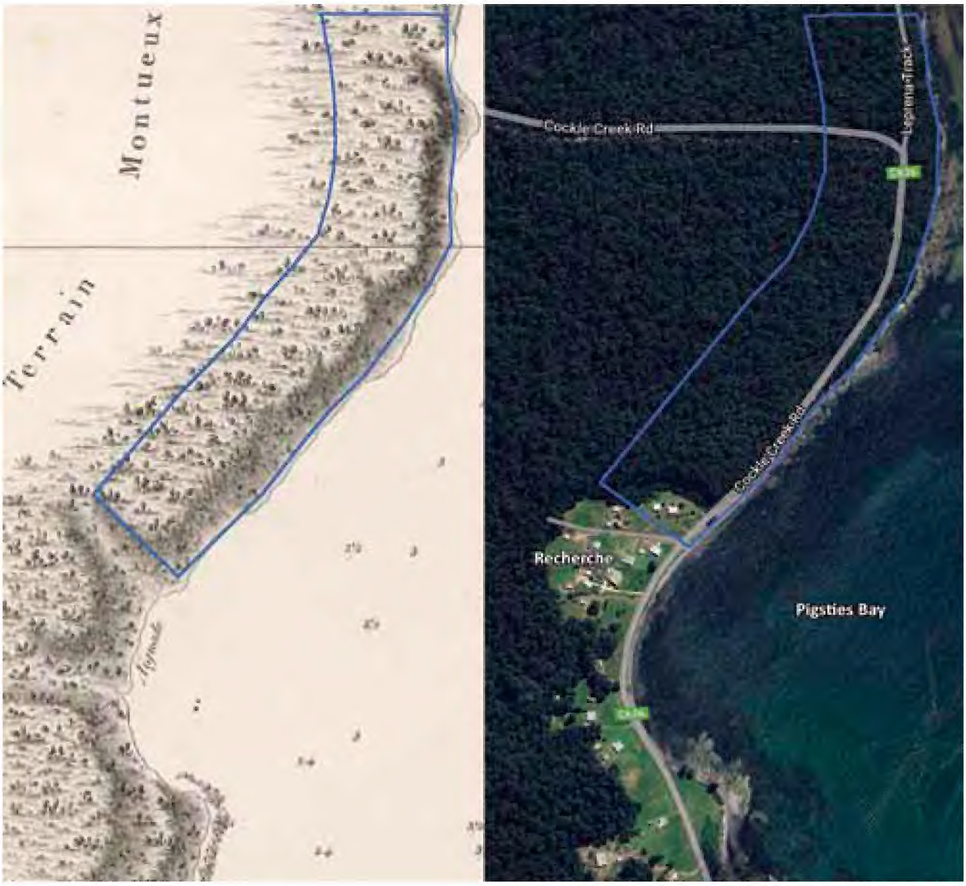

Figure 4. The approximate area of Recherche Bay visited by Labillardière on 1 May 1792, the day he first encounters *Aseroe rubra*.

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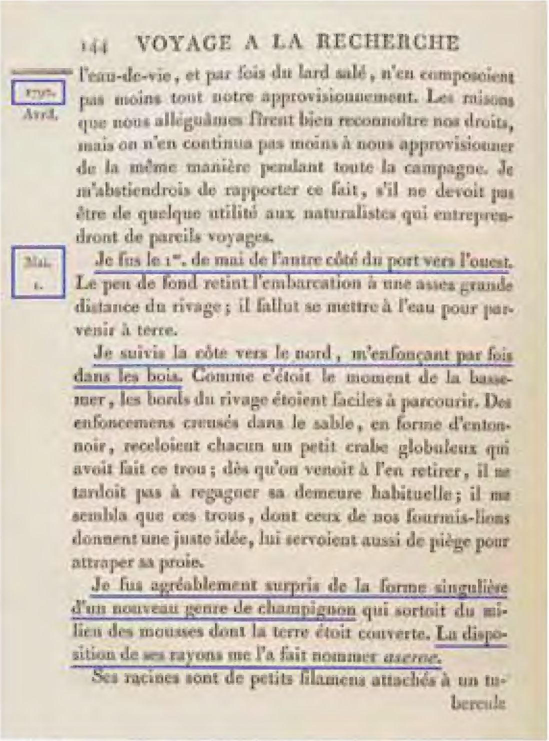
[7] Botanical collections were carried out in Tasmania by the English during James Cook's third voyage in 1777, and during William Bligh's two voyages, the first aboard the famous *Bounty* in 1788 (whose botanical collections were lost) and the second on the *Providence* in February 1792, only two months before the d'Entrecasteaux expedition.



144 VOYAGE A LA RECHERCHE

1793. Avril. l'eau-de-vie, et par fois du lard salé, n'en composoient pas moins tout notre approvisionnement. Les raisons que nous alléguâmes firent bien reconnoître nos droits, mais on n'en continua pas moins à nous approvisionner de la même manière pendant toute la campagne. Je m'abstiendrois de rapporter ce fait, s'il ne devoit pas être de quelque utilité aux naturalistes qui entreprendront de pareils voyages.

Mai. 1. Je fus le 1er. de mai de l'autre côté du port vers l'ouest. Le peu de fond retint l'embarcation à une assez grande distance du rivage; il fallut se mettre à l'eau pour parvenir à terre.

Je suivis la côte vers le nord, m'enfonçant par fois dans les bois. Comme c'étoit le moment de la basse-mer, les bords du rivage étoient faciles à parcourir. Des enfoncemens creusés dans le sable, en forme d'entonnoir, recéloient chacun un petit crabe globuleux qui avoit fait ce trou; dès qu'on venoit à l'en retirer, il ne tardoit pas à regagner sa demeure habituelle; il me sembla que ces trous, dont ceux de nos fourmis-lions donnent une juste idée, lui servoient aussi de piège pour attraper sa proie.

Je fus agréablement surpris de la forme singulière d'un nouveau genre de champignon qui sortoit du milieu des mousses dont la terre étoit couverte. La disposition de ses rayons me l'a fait nommer *aseroe*.

Ses racines sont de petits filamens attachés à un tubercule

Figure 5. Page 144 of the first tome of *Relation du Voyage* where Labillardière records his encounter and the idea behind his naming of the new genus: 'I named it *aseroe* on account of the disposition of its rays'.

mainland they dubbed the D'Entrecasteaux Channel, names that persist today (Duyker 2003). Leaving the northern part of the channel on 28 May 1792, the ships sailed counterclockwise around Australia visiting New Caledonia, the Solomon Islands, the Admiralty Islands and Amboina Island (now Ambon Island), which they left on 14 October, heading south to Australia. They arrived on 11 December at Esperance Bay, from where they explored the entire southwest coast of Australia, then known as '*Terre de Leuwin*'. Here Labillardière made more botanical collections, the first Frenchman to do so in mainland Australia, again preceded only by three English expeditions[8].

The ships returned to Tasmania on 23 December, where they remained until 28 February 1793 anchored in *Port du Sud* again in Recherche Bay, from where they left for New Zealand, the Îles *des Amis* (today Tonga islands) and again New Caledonia on 19 April. On 6 May, Kermadec (captain of *Espérance*) passed away and Alexandre d'Hesmivy d'Auribeau (1760–1794) assumed command of *Espérance* (Carr and Carr 1981). On 21 May they departed, headed to the Santa Cruz Islands (Stafleu 1966), then continuing west passing by the Admiralty Islands. At this point in the expedition, privations and diseases (mainly scurvy and dysentery) began to cause casualties among the crew. D'Entrecasteaux died of scurvy on 20 July 1793 (Carr and Carr 1981). D'Auribeau, captain of *Espérance*, took full command of the expedition, transferring to *Recherche*, while the lieutenant of *Recherche*, Elisabeth-Paul-Edouard Rossel (1765–1829) took command of *Espérance*. As commander, d'Auribeau decided to sail to Surabaya in Java, where they arrived on 28 October 1793, to ask the Dutch governor for help. Initially, despite the fact that France and Holland were now at war, they were well received, and Labillardière and Riche even made botanical collections on the island. However, on 19 February 1794, instructions arrived from Batavia (now Jakarta) ordering that only the royalists among the expedition crew, such as d'Auribeau, who chose to place himself under the protection of the Dutch, be afforded their freedom. However, the republicans listed by d'Auribeau, among them Riche, Ventenat, Piron and Labillardière, were taken prisoners of war and transferred, on 24 February, to the city of Samarang (now Semarang), while the ships and all the scientific collections were confiscated (Stafleu 1966), terminating a journey of three years and five months for *Recherche* and *Espérance*.

As demanded by the Dutch authorities, and technically following the royal orders entrusted to d'Entrecasteaux to collect all the scientific materials produced during the voyage, d'Auribeau ordered every member of the expedition to surrender their papers and collections to him. His directive specifically targeted the supporters of the *République*, among whose number were Labillardière and Piron. Labillardière was thus obliged to hand over all his collections (according to his own account, the fruits of his labour had come to fill 52 cases) and his journal, while Piron saw his artwork seized. Labillardière's journal was, however, not among the ones requisitioned, and on 28 July d'Auribeau ordered a search of Labillardière's impounded materials, hoping to recover his journal, but to no avail (Carr & Carr 1981). D'Auribeau's singling out of Labillardière was perhaps not only due to their political differences but also triggered by a personal incident that occurred when they first docked in Tasmania in May 1792. In Labillardière's own words (1800b, our translation) 'as my cabin was already full, I had no other place than the great cabin to deposit some of my specimens of plants to complete their desiccation. D'Auribeau, as first lieutenant, ruled that objects of natural history should not encumber that space, and had my two presses with the plants they contained put outside. I had to make recourse to the Commander, who countervened the decision, and ordered the displaced objects returned inside'. Shortly before his death at Samarang on 22 August 1794, d'Auribeau arranged for *Recherche* and *Espérance* to be ceded to the *Verenigde Oostindische Compagnie* (Duch East India Company). This property transfer was finalised a month later by his successor, formally ending the expedition (Stafleu 1966; Douglas 2018).

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[8] William Dampier collected some botanical specimens in the northwest of mainland Australia in 1699, Joseph Banks and Daniel Solander on the east coast in James Cook's first voyage in 1770 and Archibald Menzies on the southwest coast in George Vancouver's expedition in 1791 (Kantvilas 2007).

Labillardière and his specimens part company

In Samarang the republicans and royalists were to have very different fates: the former were made prisoners while the latter were allowed to return to France. Paradoxically, this would prove fortuitous for Labillardière's collections, as Rossel and many other members of the crew were on the same return journey as the 52 specimen cases. Forced to part ways with his collections, on 6 April 1794 Labillardière wrote to Banks (who received the letter on 4 February 1796, just five weeks before Labillardière returned to Brittany) recounting his great number of collections, and that d'Auribeau had turned them over to the Dutch and joined their side, even indicating which republicans should be taken prisoner. Although Labillardière, Piron, Riche and Ventenat were eventually allowed to return from Samarang, when the first three reached Batavia they were again taken prisoner at Fort d'Anké, while Ventenat was held at Fort Tangaran (Carr & Carr 1881). Riche and Ventenat, along with 384 other French passengers, were then allowed to depart Batavia in January 1795, arriving at *Île de France* (now Mauritius) on 7 May 1795, where Ventenat died shortly after (Stafleu 1966).

Labillardière did not leave Batavia with this first return trip. In fact, on 19 November 1794, while still prisoner at Fort d'Anké, Labillardière received a visit from Beautemps-Beaupré who informed him that Rossel had instructed Deschamps to remove duplicates from the collections, so that they would become Deschamps's own property. However, judging by the large number of duplicates that Labillardière distributed once he recovered the collections, it appears that this instruction was never carried out (Williams 2003). Some months after his first west-bound trip to *Île de France*, Riche arrived back in Batavia aboard the French ship *Nathalie*, with the demand that their former ships, the prisoners and all the collections be handed over. The Dutch authorities only relinquished a number of prisoners, however, and thus he left again on *Nathalie* together with Labillardière, setting sail westwards on 29 March 1795. By the time Labillardière finally returned to French soil on *Île de France*, on 7 May that year, of the 232 officers and crew who had left Brest four years earlier, 99 had died, due to the extremes the expedition had encountered. On 20 November that same year, Labillardière left *Île de France* aboard *Minerva*, disembarking on Île de Bas, near Finistère (Brittany) on 22 February 1796, from where he finally arrived back in Paris on 12 March 1796 (Stafleu 1966; Carr and Carr 1981; Williams 2003) about five and a half years after his departure from Brest.

As to the fate of the royalists, the death of d'Auribeau left them free to decide whether or not they should return to France. Deschamps and Delahaye chose to remain in Batavia, while others accompanied Rossel on the Dutch convoy of some 30 ships (many in poor condition) that left for Europe in January 1795. The documents and collections of the d'Entrecasteaux expedition were loaded onboard *Hougly*. After four months navigation, the convoy reached Table Bay at Cape Town (South Africa) in May but had to depart in a hurry as an English fleet had invaded the bay, seizing some of the convoy's ships. The *Hougly* barely avoided capture, fleeing with a few other ships to Saint Helena Island, a regular meeting place for Dutch sailors in the middle of the Atlantic Ocean. However, on 10 June, whilst en route, *Hougly* was captured by the English ship *Sceptre* and escorted for the rest of the trip. Once in Saint Helena, the reduced Dutch convoy learned that Britain was at war with the Netherlands and France. The documents and collections of the d'Entrecasteaux expedition were therefore transferred to *Sceptre* and the collective convoy sailed from Saint Helena Island on 1 July. Shortly thereafter, *Hougly*, in very poor condition, was burned and abandoned (Carr & Carr 1981). Had it again managed to escape the English off Saint Helena, in all likelihood the collections and documents aboard would have been lost shortly thereafter. Once again, luck was with Labillardière's collections.

On 13 September 1795, the convoy docked just inside the River Shannon (Ireland), and on 17 October they arrived at the Downs, an anchorage to the east of Deal in Kent (Great Britain), where the captain of *Sceptre* transferred 36 cases of documents and collections to another ship that would deposit them at the London customs, judging the material too fragile to bear the shaking of a transport wagon. Rossel requested to be allowed to travel with the cargo and obtained permission to board the ship (Carr & Carr 1981). Subsequently, Rossel was to remain in England for almost seven years, until he could take advantage of the prisoner exchange accorded in the 1802 Treaty of Amiens, which led to a period of peace among European nations. He returned to France in 1803 (Williams 2003). All told, the botanical riches of the d'Entrecasteaux expedition circled the globe on five different ships, suffering all manner of vicissitudes and, nonetheless, the collections arrived in good condition.

Labillardière and his collections are reunited

When Labillardière arrived in Paris on 12 March 1796, it was already known in France that the expedition's collections were in England. The events that transpired until Labillardière recovered his collections are well chronicled in the letters published by Bonnet (1892) and by Dawson (1958). Once back in the capital, Labillardière wasted no time in attempting to recover his collections, writing straightaway to André Thouin on republican calendar date *15 germinal an 4* (4 April 1796) indicating that, for a hope of recovery, it would be necessary to have his collections be considered private belongings and not national property, since Great Britain and France were at war and hence they could be treated as spoils of conflict. Ten days later he wrote to Banks and Smith, entreating them to do everything in their power to see the collections returned to him (Stafleu 1966).

The British government had already recognised Louis XVIII (at that time exiled in Courland, now Latvia) as the official representative of the French government, however, greatly complicating the return of the collections to Labillardière. Indeed, on 29 March 1796 Banks had already received a letter from François Eugène Gabriel, Duc d'Harcourt (1786–1865), representative of Louis XVIII in England, in which the king of France offered the collections to Queen Charlotte of Great Britain (Charlotte of Mecklenburg-Strelitz, 1744–1818), and authorised Banks to inspect the collections, which he did the very next day at d'Harcourt's London residence, even though he had not received any official claim from the actual government of France. Even before d'Harcourt's letter, on 4 February Banks had received Labillardière's missive from confinement in Samarang, relating the requisitioning of the collections, but at that time Banks felt uninclined to return them, convinced as he was of Labillardière's involvement in a mutiny, as he explained in his letter of 31 March to Major William Price (fl. 1780–1816), Vice-Chamberlain, to the Queen of Great Britain, offering her the collections (Carr & Carr 1981; Duyker 2003). The queen expressed interest in duplicates of the plant collections, which according to Banks were very numerous, but she declined all zoological specimens (Duyker 2003).

After the queen had accepted the gift, Banks received Labillardière's second letter, of 14 April 1796, in which his friend explained that the collections had been stolen by the Dutch in Batavia, and that therefore the information about his presumed participation in a mutiny was false. At this point, Banks understood that he had to return the collections to Labillardière, but to do so meant to break the promise made to the queen. Furthermore, on 12 May an official French request for return of the collections arrived from the governing *Directoire*. On 9 June Banks replied by letter to Labillardière, indicating that he would do his utmost to get his collections back, penning his famous sentence 'Rest assured of my unwearied diligence. That the science of two Nations may be at Peace while their Politics are at war […]', recalling the protection that France had previously granted Captain Cook (Williams 2003). In the following months, Banks engaged in intense diplomatic activity with all the parties involved in the matter. He met with Lord Grenville at the Foreign Office to persuade him that the collections were not the property of the French crown, and that they should be returned to Labillardière. On 1 August he wrote to d'Harcourt to inform him that the collections would be sent to France, given the official request he had received from the *Directoire* (Williams 2003). On 4 August, Grenville authorised the return of the collections to France (Mulvaney 2007a). But the thorniest issue remained to be resolved: notifying the queen that she would not receive a duplicate of the collections. Banks did so with great diplomatic acumen, assuring Her Majesty, via her Vice-Chamberlain Price, that 'the national character of Great Britain will certainly gain much credit for holding a conduct towards science and scientific men liberal in the highest degree' (Mulvaney 2007a). Finally, on 10 August he sent a letter to Jean Charretié (fl. 1783–1796), the French Official Delegate, who was in London to arrange the exchange of prisoners of war, informing him that the collections could be sent to the *Jardin des Plantes* in Paris on a Cartel ship[9] (Brougham 1845), and another to Jussieu in which he explained that despite having examined the content 'I shall not retain a leaf, a flower, or a Botanical idea of his Collection, for I have not possess'd myself of any thing at all of his, that fortune committed to my custody' (Kantvilas 2007; Trove 2009+c).

The collections arrived at the *Jardin des Plantes* in Paris and Jussieu kept the cases unopened until Labillardière returned from his trip to Italy in November of that same year[10] (Duyker 2003; EMAN 2018+a). Seeing that the collections were waiting for him at the *Jardin des Plantes*, Labillardière wrote to Banks on 9 December, informing him that his letter of 9 June had reached Labillardière after his return to Paris, and profusely thanking Banks for his efforts to return the collections, adding 'Indeed, no one could appreciate better than you how important it is that these collections be published by those who made them' (Stafleu 1966).

With the publication of *Relation du Voyage*, Labillardière wrote to Banks anew, on 5 March 1800, declaring: 'It is to you, Sir, that I owe the good fortune of recovering the collection which I made… I shall have the honour of sending you duplicates from time to time' [our translation]. This is a promise that Labillardière kept, as those duplicates are to be found in the Natural History Museum in London to this day (Kantvilas 2007).

Despite the hardships, imprisonment and diseases (two bouts of dysentery) he suffered during an expedition whose mortality rate was nearly 50%, Labillardière managed to survive. Of the four naturalists on the expedition, he alone managed to retain his voyage journal[11] (Carr & Carr 1981; Mulvaney 2007b; Duyker 2005). Some portions of Labillardière's journal survive in the folder of documents MAR/5jj/4 held at the *Archives Nationales* in Paris (SIV 2014+), whose full digitalisation we have been provided early access to, but unfortunately the pages for 28 April 1792 to 15 June 1792 are not among them, so we cannot inspect the original text of the description of *A. rubra* in its 1 May 1792 entry. Some 4000 of his botanical collections were transported by five different ships (*Recherche*, *Hougly*, *Sceptre*, the Downs-to-London-Customs ship, and finally the Cartel ship that returned the collections to France) flying three different flags of countries at war amongst each other (France, Holland and Great Britain) – but neither were they lost nor deteriorated by their circumglobal journey. The collections were offered to a king (Louis XVIII, in exile) and a queen (Charlotte of Great Britain and Ireland) and, nonetheless, unlike the collections his colleague Deschamps made in Java, also seized by British ships[12] (Carr & Carr 1981; Lipkowitz 2014), Labillardière managed to have them returned to his possession. How else to describe him, then, but as 'Labillardière, a fortunate botanist'?

Of all the naturalists on the expedition, thanks to the recovery of his collections, only Labillardière lived up to its botanical ambition, publishing what are considered the first works on the flora of mainland Australia, Tasmania, and the southern Pacific. In *Novae Hollandiae Plantarum Specimen* (Labillardière 1804–1807) he included 265 species (most described as new, although a few such as *Aseroe rubra* had been introduced in

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[9] Cartel ships ran humanitarian missions, mainly to carry communications or prisoners between belligerents.

[10] Stafleu (1966) indicates that Labillardière returned to Paris on 9 December. However, as documented in the archive of the correspondence of Gaspar Monge, Labillardière was in Paris before 29 November 1796 (EMAN 2018+b).

[11] No Riche journal survives. Deschamps' and Ventenat's journals were seized in Java and are now housed at the Natural History Museum in South Kensington (Great Britain) and the *Archives Nationales de la Marine* in Vincennes (France) respectively.

[12] Deschamps made collections of plants in Java, but *Union*, the ship on which he was returning to Europe, was captured by the British ships *Nile* and *Success*, and had its cargo seized. Deschamps wrote about them to Joseph Banks, who replied that 'a renewed search of the Customs House had yielded no evidence of the collection'.

Relation du Voyage), in *Sertum Austro-Caledonicum* a further 80 species (Labillardière 1824–1825), and still more in various subsequent short articles (Stafleu 1966).

Of the 265 species included in *Novae Hollandiae Plantarum Specimen* (Labillardière 1804–1807), 210 were based on Tasmanian material: consisting of 177 vascular plants, 19 ferns, two mosses, nine algae, one liverwort, one lichen and one fungus.

Thus, as Kantvilas (2007) remarks: 'From a Tasmanian perspective, Labillardière can be credited not only with the publication of the first detailed account of the island's flora, but also with the descriptions of the first Tasmanian lichen (*Cladia retipora* (Labill.) Nyl.), fungus (*Aseroe rubra*), mosses (*Hypnodendron comosum* (Labill.) Mitt. and *Cyathophorum bulbosum* (Hedw.) Müll. Hal. = *Leskea pennata* Labill.), liverwort (*Hymenophyton flabellatum* (Labill.) Dumort. ex Trevis.) and algae (*Durvillea potatorum* (Labill.) Aresch. and others).

***Aseroe*, an iconic Australasian genus**

***Aseroe, Aseroë* and other spelling variants**

Labillardière (1800, 1804–1807) was consistent in the use of the spelling *Aseroe* to designate this new genus. Despite this, in the literature we can find eight additional variants in the way that the genus name was written: '*Ascroe*' (Nees von Esenbeck 1858: 97), '*Ascroë*' (Fries 1823; Zollinger 1854), '*Ascröe*' (Endlicher 1837-1841; Nees von Esenbeck 1858: pl. 24), '*Aseroa*' (Spencer 2020), '*Aseröe*' (Berkeley 1835; Colenso 1868; Cooke 1875; Trierveiler & Goulart 2011; Sáenz & Sáenz 2016; Lima & Baseia 2018), '*Aseroë*' (for example, Fries 1835; Corda 1854; Ducker 1995; May 2001; Calonge *et al*. 2005), '*Aseros*' (Barnard 1914) and '*Asteroe*' (Watling 1973).

'*Ascroë*' was clearly a typographical error that Fries himself corrected a little later to '*Aseroë*' (Fries 1835: 251). Endlicher (1837-1841), Zollinger (1854) and Nees von Essenbeck (1858) copied Fries' *Systema Mycologicum* spelling, reiterating the same typographical error. In the context of names such as *Aseroë*, the double dot symbol over a vowel is a diaeresis, which, according to ICN Art 60.7, is 'a phonetic device that is not considered to alter the spelling' and 'its use is optional'. According to the ICN, the diaeresis indicates 'that a vowel is to be pronounced separately from the (immediately) preceding vowel', as in the examples *Cephaëlis* and *Isoëtes*. The same usage of the diaeresis is also given by Stearn (2004: 54), with examples *Aizoön*, *Aloë*, *Caënopteris* and *-oïdes*. Fries and most subsequent authors correctly place the diaeresis on the second of the vowels in the -oe pair but some authors mistakenly used the form *Aseröe*; Endlicher was also mistaken in placing the diaeresis on the first vowel in *Ascröe*. The three alternative spellings *Aseroa*, *Aseros* and *Asteroe* are variants that have arisen from typographical errors in referencing the genus, in works in which *A. rubra* is cited without describing the species and without etymological or nomenclatural comments, in a paragraph of text (Spencer 2020), a checklist (Barnard 1914) or in an appendix (Watling 1973).

The diaeresis has been used only sporadically in botany and mycology to name new genera. In botany, Linnaeus (1753) used it in *Aloë* L., *Isoëtes* L. and *Hippophaë* L. but not in *Aizoon* L. The aforementioned *Caenopteris* P.J. Bergius (1786) and *Cephaelis* Sw. (1788), as well as *Hierochloe* R. Br. (1810), on the other hand, were originally published without a diaeresis. After Linnaeus, we only rarely find it in genus names, as for example in *Buchloë* Engelm. (1859) and other compounds with *-chloë*. In mycology, it is even rarer to find genera originally published with a diaeresis. *Elsinoe* Racib. (1900), *Epichloe* (Fr.) Tul & C Tul. (1856) and *Masseeella* Dieter (1895), sometimes cited as *Elsinoë*, *Epichloë* and *Masseeëlla* respectively, were originally published without a diaeresis. However, other compounds with *-chloë*, such as *Dotichloë* G.F. Atk. (1894) *Paraepichloë* J.F. White & P.V. Reddy (1998) or *Heteroepichloë* E. Tanaka, C. Tanaka, Gafur & Tsuda (2002), were published with this diacritic mark. In a list of 6995 fungal names proposed for protection (Kirk *et al*. 2013) containing nine names with a diaeresis, only five were written originally with it: *Diploöspora* Grove (1916), *Frommeëlla* Cummins & Hirats (1983), *Helicoön* Morgan (1892), *Lacoön* J.C. David (1997) and *Naïs* Kohlm. (1962).

Following Art. 60.7 of the ICN, both *Aseroe* and *Aseroë* are correct because the diaeresis is considered an optional phonetic device. However, where a diaeresis could be included, nomenclatural databases such as Index Fungorum and MycoBank provide the main entry for names such as *Aseroe* without including a diaeresis. This is because name-matching services may not be able to match forms of names with and without the diaeresis. In addition, there is frequent confusion between diacritic marks such as the umlaut (integral parts of letters in particular languages, which the ICN requires to be suppressed, with transcription) and the diaeresis. Therefore, we recommend application of a diaeresis only in the specific context of indicating how a name should be pronounced and not as part of the name in general usage.

Etymology of the genus name *Aseroe* in mycological literature

From 1800, the date of the original publication of *Aseroe*, to the present day, we have found no convincing explanation published for the etymology of the name coined by Labillardière. Léveillé (1842), Montagne (1845a) and Schlechtendal (1847, 1861–1862) alone ventured to publish etymological hypotheses about this singular *nomen*, which, despite Labillardière's different explanation of its meaning (Figure 5): '*La disposition de ses rayons me l'a fait nommer aseroe*' / [I named it *aseroe* on account of the disposition of its rays], has remained an undeciphered enigma for more than 200 years.

Léveillé (1842: 217) was the first to publish a very brief etymology, deriving *Aseroe* from 'ασηρος, *dégoûtant*' / ασηρος [*aseros*], disgusting. Shortly afterwards, Montagne (1845a: 273), without any reference to Léveillé and only minimally expounding on his hypothesis, asserts that '*La Billardière* […] *a tiré ce nom de* ασηροσ [sic for ασηρος]*, nauséabond, dégoûtant*' / [La Billardière derived this name from ασηροσ [sic for *aseros*], nauseating, disgusting]. Labillardière, however, makes no mention whatsoever of the smell of this fungus. Furthermore, Léveillé and Montagne entirely ignore the morphological character on which Labillardière explicitly based his genus name: the arrangement of its rays. Lloyd (1907: 16) drily references Montagne's derivation in a footnote: 'He seems to have known more about the origin of the name than the namer'.

For his part, Schlechtendal (1847: 8) finds a different Greek root-word, and offers an explanation that at least attempts to follow the etymological clue provided by Labillardière. After pointing out that Fries' *Ascroë* is a typographical error, he proposes his own etymological derivation, writing in Latin: '*Nomen quod errore typographico apud Friesium l[oco]. l[ecto]. aliosque eius pedissequos Ascroë legitur, derivandum est secundum ipsius Billardieri verba: 'la disposition de ses rayons me l'a fait nommer Ascroë a graeco verbo: ό, ἡ, ἄσειρος, habena carentem, haud cum altero coniunctum indicat equum v[el]. bovem et in hac planta radios apice haud (ut in Clathro, Lysuro) coniunctos ese significat. Asirus hinc potius dicendum fuisset genus.*' / [The name, which by typographical error in Fries [*op. cit*.] and some of his followers reads *Ascroë*, must be derived according to the words of Labillardière himself: 'I named it *Ascroë* [sic for *aseroe*] on account of the disposition of its rays', from the Greek word: *ό, ἡ, ἄσειρος*, which indicates a horse or ox free of rein, not bound with another, as in this plant the rays are unbound at their apex (as they are instead in *Clathrus*, *Lysurus*). Therefore, the genus should have been named *Asirus*].

In a later work in German, Schlechtendal (1861–1862: 184) repeats his etymological reasoning on the origin of *Aseroe*, while also pointing out Montagne's hypothesis as mistaken, and suggesting that the generic name should have been either *Asiroë* or *Aseiroë*: '*Montagne giebt in einer Note (Ann. d. sc. nat. 3. sér. III. 273.) an, dass La Billardière den von ihm gegebenen Gattungsnamen Aseroë von* ασηρος*, ekelerregend, ekelhaft, abgeleitet habe, dies ist aber nicht richtig, denn er hat es von* ασειρος*, ohne Zügel, weil die Strahlen des Receptaculums frei an ihren Enden sind, genannt, wie ich schon früher gesagt und gemeint habe, es müsse Asiroë (oder Aseiroë) die Gattung heissen.*' / [Montagne states in a note (*Annales des sciences naturelles* 3. sér. III: 273) that La Billardière derived his genus name *Aseroë* from ασηρος, nauseating, disgusting, but this is not correct, because he derived it from ασειρος, without reins, because the rays of the receptacle are free at their apices, therefore the genus should have been named *Asiroë* (or *Aseiroë*), as we have previously explained].

Although Schlechtendal references Labillardière's own explanation to account for his etymological derivation of *Aseroe* from ασειρος, his reasoning is oblique, since instead of an explicit reference to their radial arrangement, he refers to the fact that the rays do not happen to be conjoined at their apex, as though Labillardière's explanation alluded to an absent connection of the rays. Schlechtendal offers an etymology that requires a lack of a character, rather than the presence of a definite structure. Furthermore, as he himself observes, were his etymology accurate, the name would require correcting. But, as we will show in the ensuing analysis of the genus names coined by Labillardière, there exists a definitive explanation of the etymology of *Aseroe* without any need to correct its spelling, and this name can be shown to be explicitly linked with the arrangement of rays in the species as mentioned by Labillardière.

Other authors who usually included etymology in their *nomenclators*, such as Wittstein (1852), Pfeiffer (1873) and Saccardo (1888), merely compiled what was already indicated by Labillardière, Léveillé/Montagne or Schlechtendal without providing new clues that would relate the name *Aseroe* to the arrangement of the rays. Wittstein (1852) only indicates that Labillardière named it *Aseroe* 'à cause de la disposition de ses rayons'. Pfeiffer (1873) and Saccardo (1888) follow Schlechtendal in stating that *Aseroe* comes from the Greek ασειρος [*aseiros*], however, they upend his etymology, misinterpreting this word as defined in Greek dictionaries (Lidell & Scott 1940, Adrados 2012+) to mean precisely the opposite '*equi in jugo*' and '*jugatus (equus)*', that is, horses bound by traces or reins.

Beyond these two hypotheses, disgusting or unbound, some authors have in the past suggested that the name is due to its star-like shape (e.g. Wittstein 1852; Ducker 1995; Pouliot 2018), yet none have satisfactorily explained why Labillardière consistently wrote *Aser-*, if the root word he intended would have been latinised as *Aster-*, i.e. star.

Labillardière, a singular coiner of new names

An analysis of the names of new taxa published by Labillardière in his works clearly shows that while the specific epithets he created from Greek words, such as in *Embothrium strobilinum* or *Urniola distichophylla*, typically followed the general rules of transliteration and transcription, the same cannot be said of his names of new genera.

According to botanical and scientific convention, the compounds of Greek words are built from the root of the genitive of the first element and the nominative of the second, adding the connecting vowel 'o' between the two if the second element begins with a consonant. For example, *Podolepis* Labill. is formed from *ποδος* (*podos*) and *λεπις* (*lepis*), where the genitive *ποδος* loses its ending *-ος*, resulting in *ποδ-* and since the following element begins with a consonant, we obtain *ποδ-ο-λεπις* (*ποδολεπις*). Here, *Podolepis* is a direct transliteration. In contrast, *Oncerostylus* (corrected by Post & Kuntze 1904 from *Ogcerostylus* Cassini) employs the conventional transcriptions from ογκηρος (*ogceros*) and στυλος (*stylos*), *with* 'ογκη', 'υ' and 'ος' becoming Latin '*once*', '*y*' and '*us*', respectively. Although this is the general procedure, nonetheless there are some exceptions, with some letters having more than one transliteration or transcription (Biville 1987) that are acceptable in botanical Latin.

Among the 54 new genus names that Labillardière validly published[13], he used standard procedures for 36 genus names, but for the remainder he employed at least five different, unconventional procedures for coining names, some of which were truly unique.

Generic names introduced by Labillardière following the standard procedure of the botanical tradition include those for genera dedicated to people (*Borya*, *Candollea* and *Richea*) or formed from vernacular names (*Arenga* from '*areng*') along with numerous genera that are formed from compound names of two elements, whether employing transliteration, such as in *Adenanthos*, *Lepidosperma*, or *Phelline*, or transcription, such as in *Actinotus*, *Dracophyllum* and *Podocarpus*. He also used conventional inflectional endings as in *Lomandra* (from λομα and the feminine inflexion of the masculine ανδρος) or *Anopterus* (from ανω and the masculine inflexion of the neuter πτερον).

For the remaining 18 genera, Labillardière used less orthodox and more peculiar procedures to coin names, some of which were studied by Hart (1954), who listed six criteria used by Labillardière to create these names. In general, we agree with Hart that Labillardière created names of three, four (or rarely five) syllables that would prove easy to pronounce, formed from compositional elements that highlighted the botanical characteristics of the species in question, using Greek roots that were well chosen, even if in some cases their etymology was not entirely obvious. As regards hypotheses about Labillardière's preoccupation with the euphony of names as the principal motive of his naming idiosyncrasies, this seems hard to demonstrate since in some cases he dispensed with letters that do not alter pronunciation, such as *Disarrenum* instead of *Disarr***h***enum*. We agree with Hart that Labillardière omitted, changed, or added letters in many of the names, sometimes entirely disregarding botanical naming tradition. Finally, bearing in mind that Labillardière created 12 specific epithets that contain 'st' or 'str', such as in *Aster stellulatus* or *Anchusa strigosa*, we cannot agree with Hart's assessment that Labillardière refrained from using certain groups of letters such as 'st' or 'str' because he was French. Indeed, the specific reason for not using 'st' or 'str' in the names of his genera was due to another, quite singular factor that we explain in the following section, since among those names is *Aseroe*, our protagonist.

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[13] We do not include here the name not validly published '*Scobedia* Labill. ex Steud.' as listed in IPNI (2023b) as Labillardière never published it and Steudel (1821) did not include any reference to a description or diagnosis of this genus that would validate the name he attributes to Labillardière.

Labillardière chose to omit letters from five genus names (deletions in bold): *Calorophus* (instead of *Calo***st***rophus*), *Calytrix* (instead of *Caly***co***t***h***rix*), *Campynema* (instead of *Campy***lo***nema*), *Chorizema* (instead of *Choriz***on***ema*) and *Prostanthera* (instead of *Prost***hek***anthera*). In three names he added letters (additions in bold): *Geisso***i***s*, *Gen***os***iris* and *Mitr***as***acme*. As can be seen in these examples, the omissions or additions were made preferentially among the connecting letters between the two elements of the compound.

In five names he chose transliterations or transcriptions (sometimes with additional letters) that do not correspond to the standard conversions, and which are a Labillardière idiosyncrasy. These names and their standard conversion from Greek to Latin in parentheses, are as follows: *Anigozanthos* (*anisanthos*, from *anisos*/ανισος = irregular[14] and *anthos*/ανθος = flower), *Dimereza* (*dimeriza*, from *di*/δι = two and *merizo*/μεριζω = part), *Oxera* (*oncera*, from *onceros*/*ογκηρος* = swollen), *Siloxerus* (*stylonceros*, from στυλος = style and *ογκηρος* = swollen) and *Spermaxyrum* (*spermancyrum*, from *sperma*/περμα = sperm/ seed and *ancyra*/αγκηρα = anchor). From the latter three names *Oxera*, *Siloxerus* and *Spermaxyrum* it can be inferred that Labillardière consistently transcribed the Greek digraph 'γκ' with the Latin letter '*x*', instead of transcribing it '*nc*', the standard conversion by botanical tradition, or transliterating it '*gc*' as in Cassini's (1827: 221) correction of *Siloxerus* to *Ogcerostylus*.

In only one case, *Mazeutoxeron*, it has proved impossible to positively identify the Greek words used to compose the name, for which Labillardière included no etymological explanation. We find it quite possible that the second element (*oxeron*) refers to a swollen part of the plant, with a transcription of 'γκ' to '*x*' as in *Oxera*, *Siloxerus*, and *Spermaxyrum*, inflecting '*onceros*' (swollen) to the neuter gender (*onceron*). Of 59 works that we have reviewed with references to *Mazeutoxeron*, only Wittstein (1852) indicated that this name derives from *maza* (mass), *entos* (inside) and *xeros* (dry). However, Labillardière did not describe the capsule in this way, and as can be seen in the other names such as *Oxera* (referred to above) where '*oxeron*' was consistently used by Labillardière to mean swollen (from *onceros*) not dry (from *xeros*). Furthermore, Wittstein changes '*euto*' to '*ento*' without any explanation, rendering his etymology of *Mazeutoxeron* altogether unconvincing. This name garnered Labillardière harsh criticism, with Wilkes (1816: 583) referring to 'this uncouth name' and Smith (1832: 213) complaining 'what a barbarous name; such a monster'. Within a few years of its publication by Labillardière (1800b), *Mazeutoxeron* was treated as a synonym of the earlier name *Correa* by Ventenat (1803-1805: as '*Correa* Sm.') and by Labillardière himself (1804–1807; as '*Correa*', referencing Smith). *Correa* Andrews and *Corraea* Sm. were independently introduced in 1798 but when treated as synonyms the former has priority (*Corraea* becoming a later homonym) and is the name now used.

Finally, *Aseroe*, *Disemma*, *Microsemma* and *Siloxerus*, were coined by Labillardière following an ingenious and unique procedure that we have found used by no other authors. This procedure makes it possible to unequivocally explain why instead of calling these genera *Asteroe*, *Distemma*, *Microstemma* and *Stiloxerus*, following the etymology that he explicitly included in his descriptions, the digraph '*st*' lost the letter '*t*'. Through exhaustive research into the lifetime of Labillardière, including all his works, notes in his own handwriting in his herbarium material, and dictionaries in his library, we have found irrefutable evidence confirming our conclusions about the reason behind Labillardière's consistent removal of the letter '*t*' from all '*st*' digraphs in his generic names, which prove all previous explanations of *Aseroe*'s etymology as erroneous.

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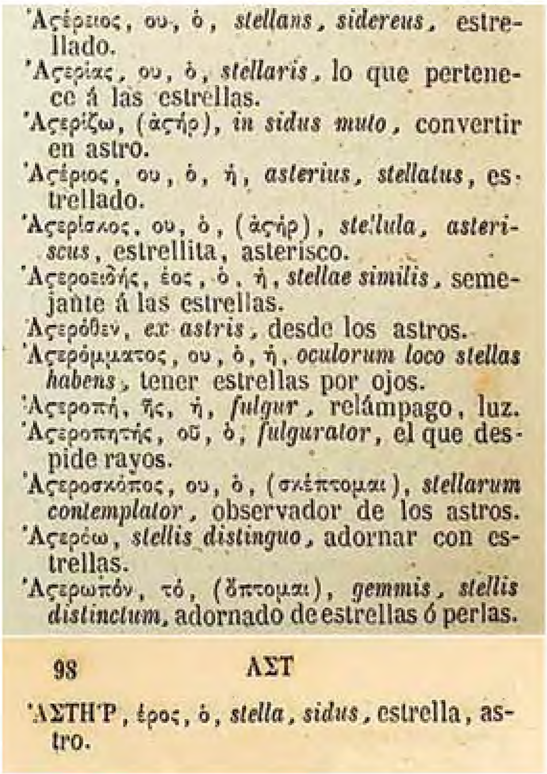
[14] Here we follow Bentham (1873: 442) who suggests that Labillardière used the variant 'anigoz' of anisos by changing two of its letters to make the name more euphonious. This also coincides with the etymology indicated by Labillardière ('corolle irregulière'/ [irregular corolla]). Other authors (e.g. Gledhill 2008: 49; Geerinck 1970) indicate that it is derived instead from the Greek *anoigos* (ανοιγος), meaning open, but in this case, although the word is more similar to the first element in Labillardière's name, it is not based on the etymology he provides.

Stigma solves the enigma

Our research began almost 10 years ago when one of the authors (L.A.P.) could not find a sfatisfactory explanation that linked the name *Aseroe* with the etymology provided by Labillardière: '*La disposition de ses rayons me l'a fait nommer aseroe*'/ [I named it *Aseroe* on account of the arrangement of its rays]. As previously mentioned, some authors explained its etymology differently, ignoring Labillardière's own words. Those, on the other hand, who interpreted the author's explanation as meaning 'star-shaped', which would agree with the radial arrangement of the upper portion of the basidiome of this taxon, could not explain why Labillardière did not coin the name '*Asteroe*' (from *aster*, Latin for star).

First attempts to identify a Latin or Greek term that would link the root *Aser-* with an object (real or figurative) displaying a radial structure were in vain, and puzzling. There were no clues to be found in specialised literature on botanical etymology and scientific terminology (Wittstein 1852; Pfeiffer 1873; Saint-Lager 1880; Miller 1897; Clements 1902; Brown 1954; Borror 1960; Nybakken 1960; Benoit-Lallemand 1969; Ayes 1972; Marolleau 1974; Jaeger 1978; Mehier 1978; Biville 1987; Escallon 1989; Manara 1992; Bresson 1996; Stearn 2004; Gledhill 2008; Hawksworth 2010; Harrison 2012) nor in any modern Latin or Greek dictionary (Lidell & Scott 1940; Gaffiot 2000; Miguel 2003; Adrados 2012+; Sebastián-Yarza 2017).



'Αςέρειος, ου, ὁ, *stellans*, *sidereus*, estrellado.
'Αςερίας, ου, ὁ, *stellaris*. lo que pertenece á las estrellas.
'Αςερίζω, (ἀςήρ), *in sidus muto*, convertir en astro.
'Αςέριος, ου, ὁ, ἡ, *asterius*, *stellatus*, estrellado.
'Αςερίσκος, ου, ὁ, (ἀςήρ), *stellula*, *asteriscus*, estrellita, asterisco.
'Αςεροειδής, έος, ὁ, ἡ, *stellae similis*, semejante á las estrellas.
'Αςερόθεν, *ex astris*, desde los astros.
'Αςερόμματος, ου, ὁ, ἡ, *oculorum loco stellas habens*, tener estrellas por ojos.
'Αςεροπή, ῆς, ἡ, *fulgur*, relámpago, luz.
'Αςεροπητής, οῦ, ὁ, *fulgurator*, el que despide rayos.
'Αςεροσκόπος, ου, ὁ, (σκέπτομαι), *stellarum contemplator*, observador de los astros.
'Αςερόω, *stellis distinguo*, adornar con estrellas.
'Αςερωπόν, τό, (ὄπτομαι), *gemmis*, *stellis distinctum*, adornado de estrellas ó perlas.

98 ΑΣΤ

'ΑΣΤΗ'Ρ, έρος, ὁ, *stella*, *sidus*, estrella, astro.

Figure 6. Pages 97–98 of the Escolapios *Diccionario Manual* (1856) provided the breakthrough clue to the enigma of *stigma*, with a series of star-related words devoid of the expected 'τ', followed by one page-leading entry in capital letters, in which the value of the ligature 'ς' for 'στ' emerges unequivocally.

Might the absence of clues in modern works be due to Labillardière's use of some obsolete term? For more accurate contextual reference, a lexographical examination of older dictionaries ensued. At the unexpected discovery in one of them (Escolapios 1856: 97) of 13 words beginning with '*Αςερ-*', ('*Aser-*' in Latin), all of them various terms related to 'star', the plot thickened. The problem now became two–fold: firstly, to find out why in this dictionary a final letter sigma 'ς', used in Greek texts for 's' exclusively at the end of words, was placed in these 13 words in a position that instead requires the sigma letter 'σ', obligatory in Greek for 's' in the middle or at the start of a word. Secondly, why was there no letter 'τ' used in these entries? Upon closer examination, comparing the shape of the second letter in these words and the final sigma graph from the same text ('ς' and 'ς'' respectively), these appeared not to be the same character (Figure 6). Did 'ς' perhaps not represent the letter 's' after all? For several of the 13 words where the entry specifies that they derive from the Greek 'αςηρ' ('*aser*' in Latin), there is no 'αστηρ' ('*aster*' in Latin) mentioned. But on the following page (Escolapios 1856: 98), the first entry is unambiguously explicit: in capital letters it reads '*ΑΣΤΗ'R*, *έρος*, *ό*, *stella*, *sidus*, *estrella*, *astro*' (which, transliterated into Latin, would be '*ASTER*, *eros* […]'), now featuring 'st', and referencing the Latin '*stella*' and Spanish '*estrella*', star in English. This left only one possible conclusion: the enigmatic non-final sigma-

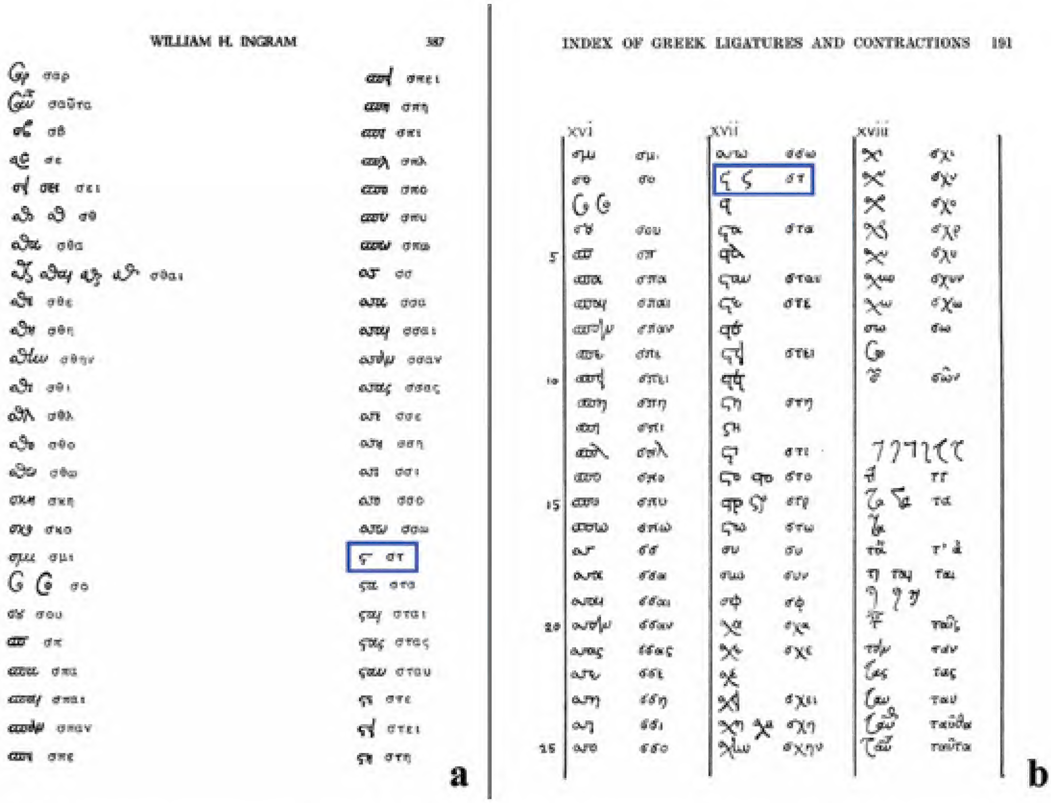


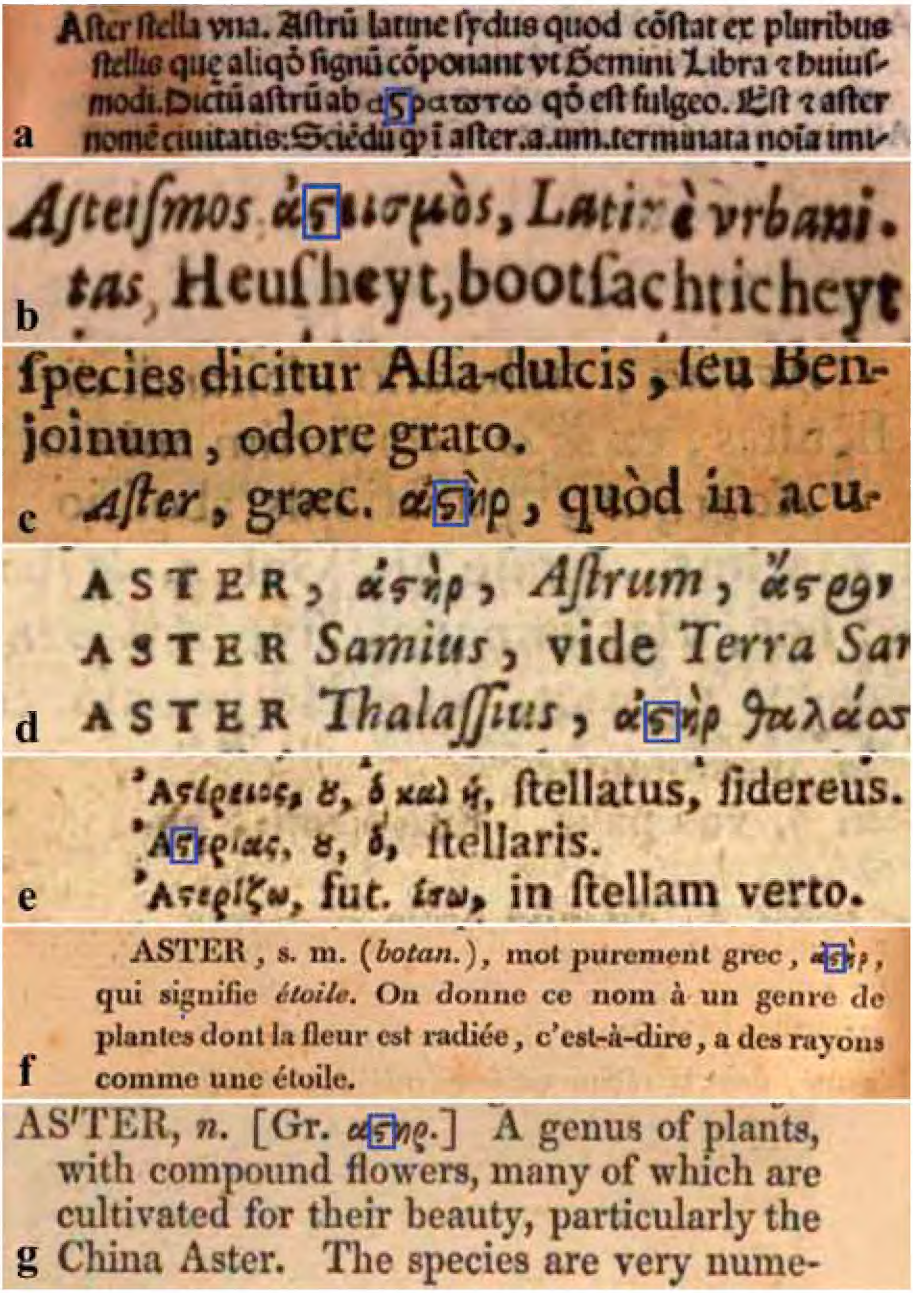
Figure 7. Two tables of conventional ligatures used in Greek manuscripts and editions with three forms of *stigma* for 'στ' framed in blue. **a.** Ingram 1966. **b.** Wallace 1923.

like graph 'ς' in the other entries was not a letter 's', but instead a symbol that stood for the digraph 'st'.

Armed with this inescapable deduction, soon the enigmatic symbol's identity lay before us: a web search for 'st symbol in Greek' offers few, but specific results, including a summary page (Wikipedia 2018) of the literature on the obsolete Greek ligature '*stigma*', confirming both its existence and, for our purposes, its equivalence with the digraph 'st'. Ligatures are no longer featured in modern Greek works, but they were a mainstay in Greek texts, both manuscripts and published, from the Middle Ages until the mid-19th century. Their abundance (and the intricate, cryptic nature of some of them) made the transcription of Greek texts a specialist matter for centuries. To assist in the study of these texts, the numerous '*Alphabetum graecum*' that were published from the 16th century (e.g. Wechelus 1532; Gryphius 1544; Morelius 1550; Stephanus 1550; Plantinus 1566) onwards provided extensive tables showing the archaic '*abbreviationes*' or '*connexiones literarum*' used in classical texts, ligature tables that were still being compiled in the 20th century (Wallace 1923; Ingram 1966, Figure 7). These ligatures gradually disappeared as the Western printing industry expanded its audience, most rapidly during the first half of the 19th century. Of all the known Greek ligatures, the last to vanish from printed works, around the middle of the 19th century, was the 'st' digraph symbol *stigma* 'ς'.

Having identified the *stigma* symbol as the keystone clue to the *Aseroe* enigma, it was crucial to show that Labillardière would have been familiar with it. A review of whether *stigma* featured in the dictionaries, etymological works, or books on Greek medical terms that Labillardière might have used, would provide such a proof. To find the former, the digital archive '*Musée virtuel des dictionnaires*' of CYU Université Cergy-Pontoise (2018) allowed a chronological search of French lexical works published prior to Labillardière's *Relation du Voyage*. From the data available, there appeared numerous such works from the early 16th century to the early 19th century (Calepinus 1509; Le Tellier 1548; Stephanus 1572; Trippault 1581; Morelius 1608; Servilius 1612; Robertson 1676; Gaudinus 1680; Callard 1693; Castelli 1746; Pomey 1757; Ernesti 1796), all employing the *stigma* symbol, each varying its shape somewhat, but almost always very similar to the final letter sigma, and also to the modern letter 's' of our Latin alphabet. Likewise, a host of other works demonstrated the use of *stigma* to have been common until the middle of the 19th century (e.g. Morin 1803; Quénon 1807; Planche 1817; Webster 1832), only to suddenly disappear shortly thereafter (Figure 8).

A vivid illustration of the evolution of the digraph '*st*' transcribed as *stigma* ('ϛ') in the term *aster/asteros* is observable in the different versions throughout a millennium in the work *Suidae Lexicon Graecum* written



Aſter ſtella vna. Aſtrū latine ſydus quod cōſtat ex pluribus ſtellis quę aliqđ ſignū cōponant vt Gemini Libra ⁊ huiuſmodi. Dictū aſtrū ab ἀϛράπτω qđ eſt fulgeo. Eſt ⁊ aſter nomē ciuitatis: Sciēdū q̧ i aſter.a.um.terminata noīa imi-

Aſteiſmos ἀϛεισμὸς, Latinè vrbanitas, Heuſheyt, bootſachticheyt

ſpecies dicitur Aſſa-dulcis, ſeu Benjoinum, odore grato.
Aſter, græc. ἀϛὴρ, quòd in acu-

ASTER, ἀϛὴρ, Aſtrum, ἄϛρον
ASTER Samius, vide Terra Sa
ASTER Thalaſſius, ἀϛὴρ θαλάσιος

Ἀϛέρειος, ȣ, ὁ καὶ ἡ, ſtellatus, ſidereus.
Ἀϛερίας, ȣ, ὁ, ſtellaris.
Ἀϛερίζω, fut. ίσω, in ſtellam verto.

ASTER, s. m. (*botan.*), mot purement grec, ἀϛὴρ, qui signifie *étoile*. On donne ce nom à un genre de plantes dont la fleur est radiée, c'est-à-dire, a des rayons comme une étoile.

AS'TER, *n.* [Gr. ἀϛηρ.] A genus of plants, with compound flowers, many of which are cultivated for their beauty, particularly the China Aster. The species are very nume-

Figure 8. Period European Greek lexica invariably featured the *stigma* ligature 'ϛ' up until the middle of the nineteenth century. **a.** Calepinus (1509). **b.** Servilius (1612). **c.** Callard (1693). **d.** Castelli (1746). **e.** Ernesti (1796). **f.** Morin (1803). **g.** Webster (1832).

at the end of the 10th century. The original manuscript is lost, but fortunately there are still extant copies of the text, such as the Parisinus 2625 codex (Anonymous 1250–1350, as Grec 2625), and numerous subsequent printed versions dating throughout nearly four centuries (Chalcondyles 1499; Manutius 1514; Wolfius [as 'VVolfius'] 1564; Portus 1619; Kusterus 1705; Bernhardy 1853; Bekker 1854). All these works feature *aster*/*asteros* with the *stigma* ligature ('ϛ') except Bernhardy (1853), the first to opt for the digraph 'στ' instead (Figure 9).

Having established that Labillardière might have known about the *stigma* ligature, only the certainty of his actual possession of any works in which it appears would indicate he had first-hand experience of it. To this end, Duyker's (2003) reference to a publication listing the books in the Labillardière library for sale at auction

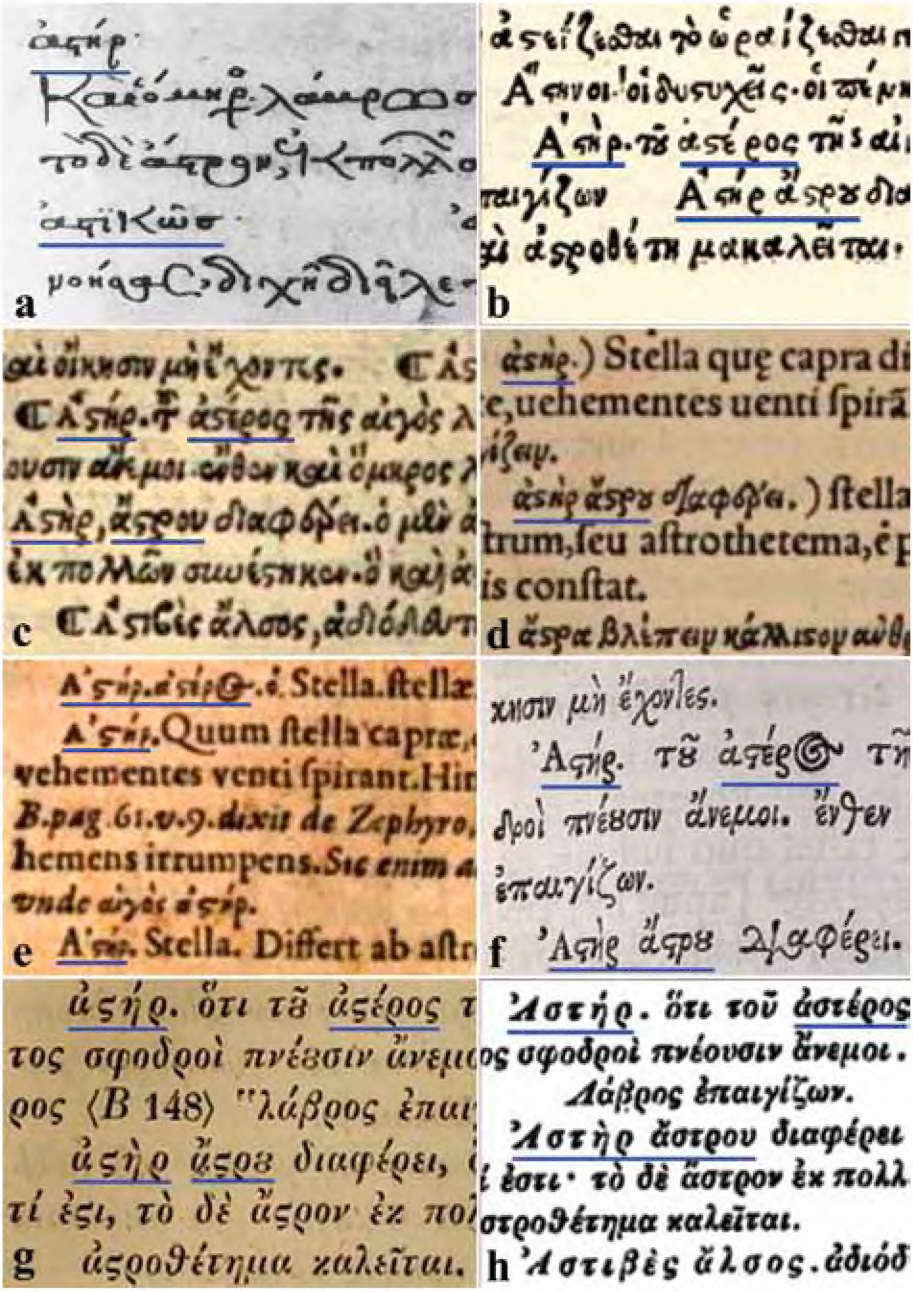
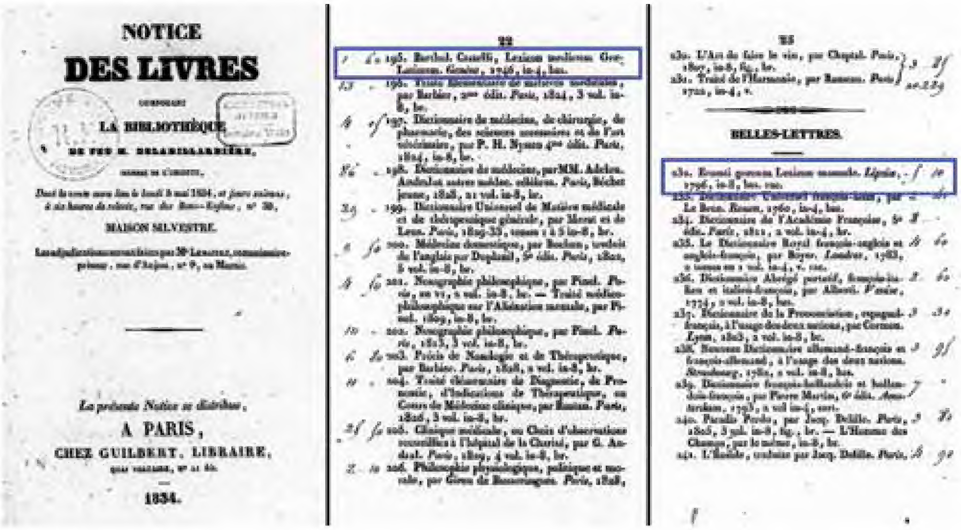


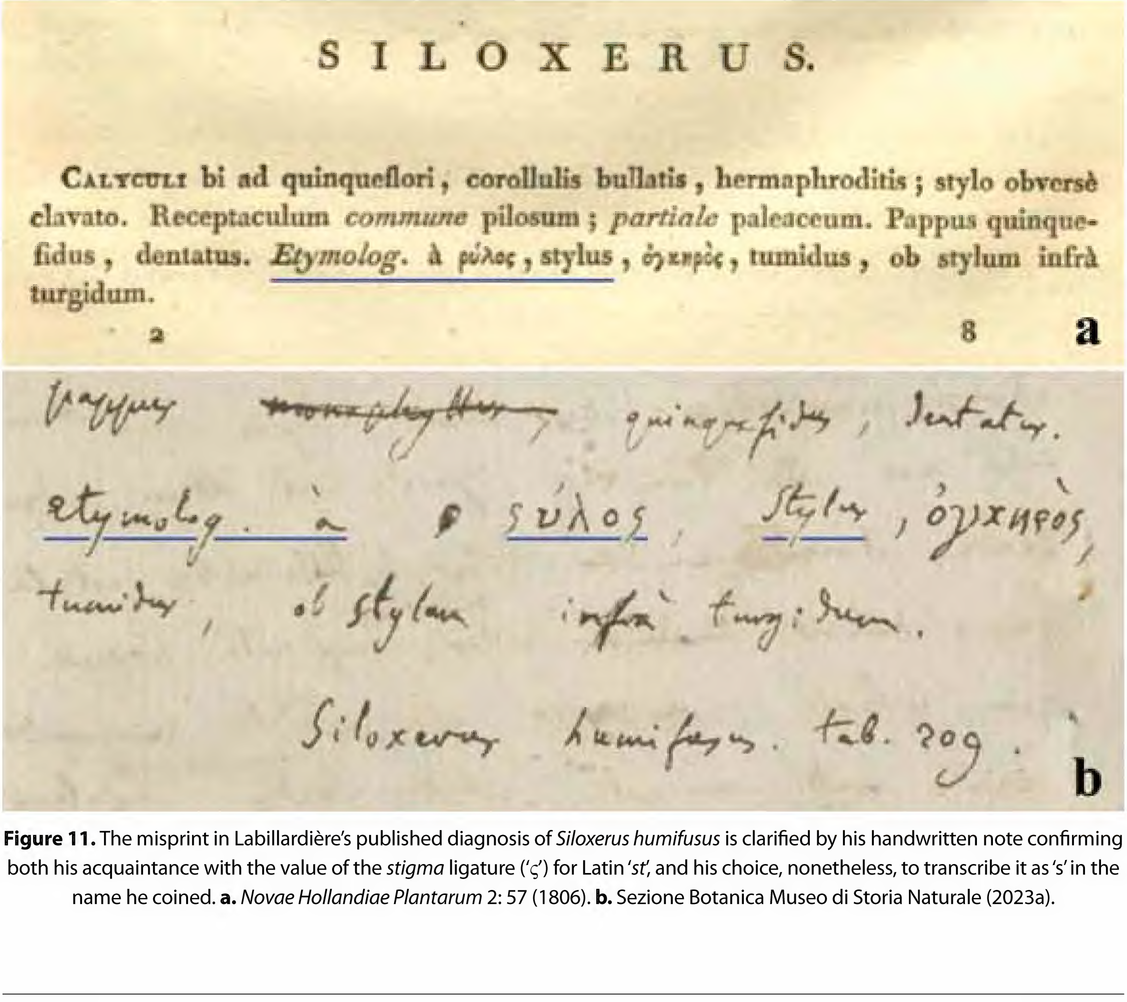
Figure 9. For over five centuries, from manuscript through printed versions, all editions of *Suidae* retained the *stigma* ligature 'ϛ', shown here underlined in *αϛηρ* (aster) and related words, up until 1854. Bernhardy (1853) anticipates all subsequent editions, switching to 'στ' instead. **a.** Parisinus 2625 (ca. 1250–1350). **b.** Chalcondyles (1499). **c.** Manutius (1514). **d.** Wolfius (1564). **e.** Portus (1619). **f.** Kusterus (1705). **g.** Bekker (1854). **h.** Bernhardy (1853).



NOTICE
DES LIVRES
LA BIBLIOTHÈQUE
MAISON SILVESTRE.
A PARIS,
CHEZ GUILBERT, LIBRAIRE,
1834.

BELLES-LETTRES.

Figure 10. Auction catalogue from 1834, listing Castelli's *Lexicon Medicum* (1746) and Ernesti's *Graecum Lexicon* (1796) among the volumes from Labillardière's personal library up for bidding.



SILOXERUS.

Calyculi bi ad quinqueflori, corollulis bullatis, hermaphroditis; stylo obversè clavato. Receptaculum *commune* pilosum; *partiale* paleaceum. Pappus quinquefidus, dentatus. *Etymolog*. à ϛύλος, stylus, ὀγκηρὸς, tumidus, ob stylum infrà turgidum.

2 8

Pappus ~~monophyllus~~, quinquefidus, dentatus.
etymolog. à ϛύλος, stylus, ὀγχηρὸς, tumidus, ob stylum infrà turgidum.

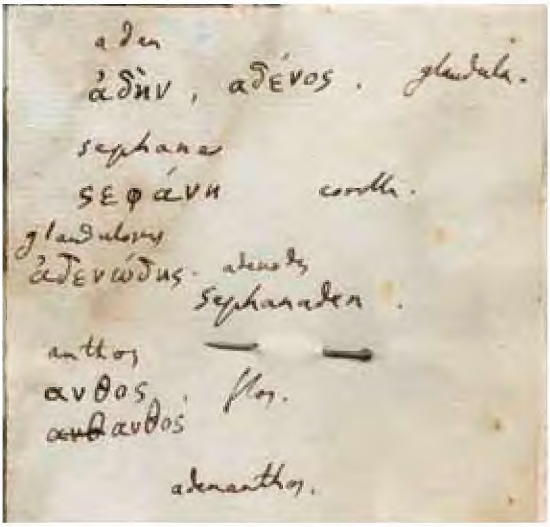
Siloxerus humifusus. tab. 209.

Figure 11. The misprint in Labillardière's published diagnosis of *Siloxerus humifusus* is clarified by his handwritten note confirming both his acquaintance with the value of the *stigma* ligature ('ϛ') for Latin '*st*', and his choice, nonetheless, to transcribe it as 's' in the name he coined. **a.** *Novae Hollandiae Plantarum* 2: 57 (1806). **b.** Sezione Botanica Museo di Storia Naturale (2023a).

on 5 May 1834 (Anonymous 1834) proved crucial (Figure 10). The auction catalogue lists among the volumes in the botanist's library Castelli's *Lexicon Medicum Graeco-latinum* (Castelli 1746) and Ernesti's *Graecum Lexicon Manuale* (Ernesti 1796) – and in both works we find entries for 'αϛηρ', meaning star (see Figure 8). Thus far, the evidence indicated that Labillardière in coining the new genus for the star-shaped fungus he encountered, chose to transliterate the *stigma* 'ϛ', found in all lexicon entries for the Greek root term *aster-* at the time, directly as 's', rather than transcribing it as 'st'. What could be a motive for such a bold choice – beyond the simple fact of the great resemblance of the *stigma* symbol 'ϛ' with the letter 's' – is a matter that will be examined further on.

Labillardière's singular choice to transliterate *stigma* into the letter 's' in *Aseroe* would appear less unusual if there were other examples of names he coined in which he applied the same lexical technique. Through an in-depth analysis of the etymologies of the 54 generic names he authored, we have confirmed he adopted the same approach in three further published genera: *Disemma*, *Microsemma* and *Siloxerus*. In the case of *Disemma* and *Microsemma*, both names are composed from '*stemma*' meaning crown/garland and the elements '*di*' and '*micro*' which mean two/twice/double and small respectively. Indeed, Labillardière writes for *Disemma* 'à *duplici coronâ sic appellavi*' / [I called it a double crown], '*coronâ*' meaning crown/garland, and for *Microsemma* '*Coronulam proptèr floris … sic appellavi*' / [I called it on account of its small crown of flowers], '*coronulam*' meaning small crown. For *Siloxerus*, Labillardière published the following etymology: 'ρύλος [sic], *stylus*, όγκηρός, *tumidus, ob stylum infrà turgidum*' meaning 'style swollen below'. Only this third etymology actually provides the Greek root words, but due to an obvious misprint, the first letter of the Greek for stylus is given as 'ρ' ('r' in Latin), obscuring the demonstration of the digraph 'στ' being rendered, via *stigma* 'ϛ', as 's'. Fortunately, Labillardière's manuscript notes for this passage have survived, in the notes accompanying the holotype of *Siloxerus humifusus*, conserved in Florence (Sezione Botanica Museo di Storia Naturale 2023a). Here, he writes the Greek for '*stylus*' correctly, and with a *stigma* as the initial letter: 'ϛυλος' (Figure 11). As expected, both 'ϛυλος' (*stylus*) and 'ϛεμμα' (*stemma*) are featured with *stigma* 'ϛ' in the *Graecum Lexicon Manuale* (Ernesti 1796) held by Labillardière. By the same technique with which 'αστηρ/αϛηρ' was rendered '*aser-*', 'στεμμα/ϛεμμα' became '*-semma*', and 'στυλος/ϛυλος' turned into '*silo-*', with no trace of 'τ/ t' in any of them.

With this conversion of *stigma* 'ϛ' into 's' Labillardière found a new procedure for creating names that no author had used before, nor has any after him. Given the idiosyncrasy of the method, it remained to be clarified whether Labillardière's technique to reduce the original consonant compound 'στ/st' to just 's', was effected by eliding the letter tau 'τ', leaving only sigma 'σ', then transliterated as 's' in Latin, or instead by a novel transliteration of the *stigma* symbol 'ϛ' directly as 's' in Latin, given the similar morphology of both. We find the answer in one (perhaps unique) surviving manuscript in Labillardière's own hand, in which he explicitly demonstrates the process by which he coined the name of the genus *Adenanthos* (*Proteaceae*), in a note attached to the holotype of *Adenanthos cuneata* Labill. This manuscript (Sezione Botanica Museo di Storia Naturale 2023b) was included in a thesis by Nelson (1975: 39a–39b) and was also published in his study of the genus *Adenanthos* (Nelson 1978: 319). It is reproduced again here (Figure 12) because of its crucial



aden
ἀδὴν, ἀδένος. glandula.
sephana
ϛεφάνη corolla.
glandulosus
ἀδενώδης. adenodes
sephanaden.
anthos
ανθος, flos.
~~ανθ~~ ανθος
adenanthos.

Figure 12. Labillardière's handwritten note recording the derivation of '*adenanthos*', pinned to the holotype of *A. cuneata* (Sezione Botanica Museo di Storia Naturale 2023b). In the alternative name he contemplated, '*sephanaden*', he transcribes *stigma* 'ϛ' to '*s*' directly.

importance in unravelling which of the two approaches Labillardière used to coin his names from root words containing *stigma*. In the note accompanying the holotype of *A. cuneata*, in just a few lines we can follow how Labillardière uses two alternatives to form a compound with the Greek element ‘αδην, αδενος *glandula*’ meaning gland, which he transliterates ‘*aden*’ in Latin. One genus name candidate is ‘*adenanthos*’, through the union of *aden* with ‘ανθος *flos*’, meaning flower, which he transliterates ‘*anthos*’ in Latin. The other option he considers is to join *aden* with ‘ϛεφανη corolla’, which he transliterates ‘*sephane*’, to form ‘*sephanaden*’. It is in this potential alternative name (which he ultimately rejects), that Labillardière starts in his own hand from the Greek word ‘ϛεφανη’ with a first *stigma* – because the full word for corolla in Greek is ‘στεφανη’ = ‘*stephane*’. In this further example of his singular procedure, he ignores the consonant compound ‘στ/st’ for which *stigma* ‘ϛ’ stands, and turns it directly into the Latin ‘s’ of ‘*sephane*’. This shows unambiguously that he transliterated *stigma* ‘ϛ’ directly into ‘s’. This conclusion is corroborated by the fact that in the *Graecum Lexicon Manuale* (Ernesti 1796)

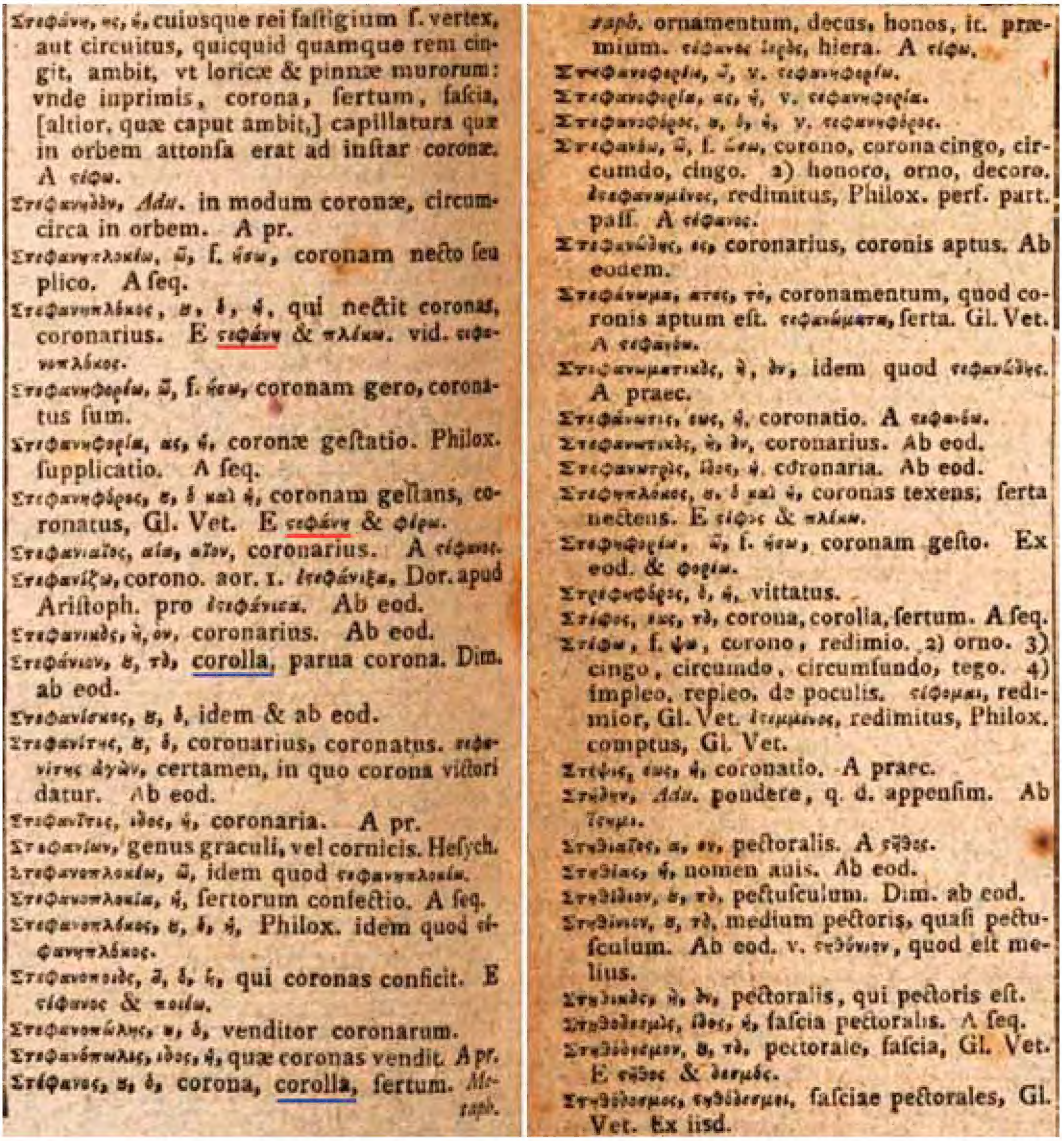


Figure 13. Columns 1996 and 1997 from Ernesti’s *Graecum Lexicon Manuale* (1796), with entries featuring words with the root *‘ϛεφαν-’*. The words *‘ϛεφανη’* and *‘corolla’* used by Labillardière are underlined in red and blue respectively.

held by Labillardière, there are entries for 33 words with the root στεφαν- (listed with an initial capital letter as Στεφαν-) meaning '*corona*', that is, crown/garland, and several of them include the root word 'ςεφανη' spelled with *stigma*, and two, Στεφανιον and Στεφανος, indicated as meaning, in addition to crown/garland, also '*corolla*' (Figure 13).

In conclusion, we have sufficient elements that demonstrate the singular procedure by which Labillardière coined the names *Aseroe*, *Disemma*, *Microsemma* and *Siloxerus* to be a direct, novel transliteration of the *stigma* symbol 'ς', a conventional Greek ligature common to the reference texts he held, by the Latin letter 's', both consistently and intentionally.

Now that we know the who, what, where, and how of '*Aseroe*', we require only the why and the when. Although we have found no hard evidence that allows us to positively prove why Labillardière adopted this idiosyncratic procedure (among others), there is a plausible, straightforward explanation for it: to prevent his new genera from becoming later homonyms of pre-existing names. In the case of *Aseroe*, specifically, Labillardière's account in *Relation du Voyage* (Labillardière 1800a: 173) also features the genus *Aster* L. (1753). Furthermore, *Asterias* Borkh. (1796) and *Asteroides* Mill. (1754) had already been published in other works. As *Aseroe*, the new genus name was safely distinct. In the case of *Microsemma,* this same motivation is even more evident: by the time Labillardière published this genus name in *Sertum Austro-Caledonicum* (Labillardière 1824–1825: 58), Robert Brown had already published *Microstemma* R. Br. (Brown 1811), something that Labillardière demonstrably knew, because he cited Brown's work. *Microsemma* could stand as distinct and thus legitimate. And, once the element '*semma*' served its purpose in *Microsemma*, it was fit for use in *Disemma*. Given a further opportunity, for consistency with the three previous names, he again employed the same procedure in coining *Siloxerus*.

No etymological enquiry would be complete without an exact lexical match that can reveal the grammatical reasons for Labillardière's choice to form the name *Aseroe*. None of the Greek dictionaries that we have consulted (including those that Labillardière had in his library) contain the exact word *Aseroe* nor the word *Asteroe*, whether as a main entry term, or as a derivative. Thus, Labillardière left us a further enigma, not having included in the publication any etymological detail to explain for the ending of the name *Aseroe*. We have found four possible explanations for its termination *-oe*.

The simplest explanation is that Labillardière based the name on 'αςερος/*aseros*', the genitive of 'αςηρ/*aser*' (star), which is masculine in Greek. However, for an unspecified reason, Labillardière preferred to change its gender to feminine, modifying the final 's' of the masculine inflection to the feminine inflection 'e' which takes up the botanical tradition that names of genera of Greek origin ending in 'e' are feminine (Nybakken 1960: 47; Manara 1992: 211; see IPNI genera ending in 'e'). In accordance with the modified gender he opted for, Labillardière named *Aseroe rubra*, the single species of the new genus, using a feminine epithet. This would not be the only instance of Labillardière changing the inflection of generic names, switching their grammatical gender, as he did in *Lomandra* (*-andra* feminine instead of the Greek masculine *-andros*), mentioned above, and *Anopterus* (*-pterus* masculine instead of the Greek neuter *-pteron*).

The name *Aseroe* could also stem from the omission of the last letters (in bold) of the Greek words αςεροειδης/ *aseroe**ides*** (star-like) or αςεροεις/*aseroe**is*** (star-shaped) found in Labillardière's dictionary *Graecum Lexicon Manuale* (Ernesti 1796), in this case leaving the final 'e' and making the gender feminine. In relation to this hypothesis, it is relevant to note that of 54 names that Labillardière coined, only six (excluding the honorifics, which are conditioned by the respective surnames) have two vowels in a row, and none have three. Furthermore, the elision of letters was a technique Labillardière had already used when coining compound names, as examined in the previous section.

A further explanation would involve the verb αστεροω (to decorate with stars). The third person of the indicative of this verb is αστεροι (it decorates with starts), and the Greek diphthong 'οι' is conventionally transcribed '*oe*' in Latin (Biville 1987) resulting *asteroe* en Latin. The resulting Latin word if rendering *stigma* as 's' would be *Aseroe* with the meaning of 'he/she decorates with stars'. Likewise, a fourth possibility is the feminine adjective of this same verb, which, by analogy with other verbs such as διπλοω and τριπλοω, which have the feminine adjectives διπλοη and τριπλοη, respectively, would have the feminine adjective αστεροη, with the meaning 'star-shaped' – however this adjective is undocumented. Ultimately, as we have not found the verb αστεροω in the dictionaries in Labillardière's possession, we consider these explanations based on its derivatives to be less probable.

The precise dates of publication of *Aseroe* and *A. rubra* established

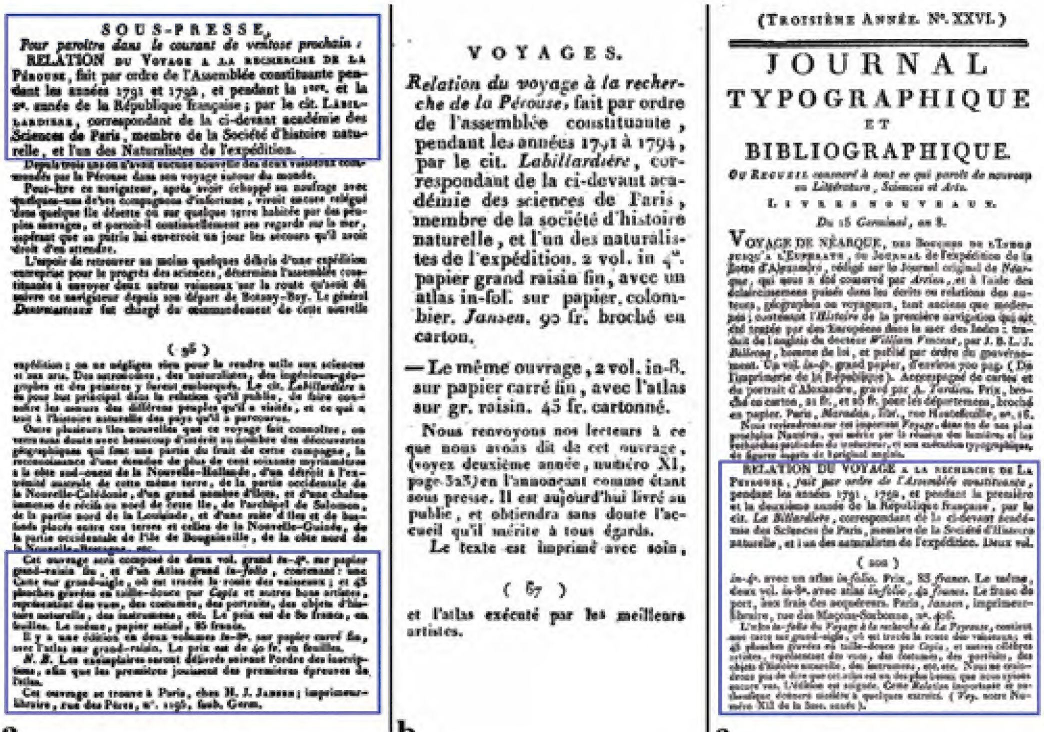
Labillardière's account of the eventful South Seas voyage was a highly anticipated work, and his publisher in Paris, Henrik J. Jansen, one of the handful of publishers who enjoyed the favour of the revolutionary *Directoire* (Hesse 1991: 192), arranged to have multiple versions printed to cover all potential readerships. Thus, the Parisian original edition of 1800 consisted of 4º and 8º format editions on different qualities of paper, plus the atlas, of one map and 43 plates, in two separate in-folio sizes, *colombier* and *grand-raisin* (Anonymous 1800a: 67, 1800d: 323; Boucher de la Richarderie 1808: 154–155).

Fixing the date of publication of a work is fundamental for nomenclatural purposes, because it indicates the moment from which a name has priority over other names of the same taxonomic rank, for example for discerning which name to apply among several synonyms. The publication date of a name is no less important than the identity of the work in which it is published, because the date determines which elements must be considered original with respect to the type of the name and, in the event that the name is transferred to another genus, what will be the correct and complete reference to the basionym for the new combination to be validly published. In the case of *Aseroe* and *A. rubra*, when studying *Relation du Voyage*, the work in which Labillardière (1800a) first mentioned these names, we find a double problem. Firstly, the three volumes that make up this work (two volumes of text and an atlas of plates) require a triply accurate ascertainment of their respective dates of publication. Secondly, given that some authors indicate that the names were not validly published in *Relation du Voyage*, positive proof is required that they were.

The need to fix the date of publication of *Relation du Voyage* arose when we found a lack of unanimity in the literature regarding several aspects about the citation of the work, beginning with its year of publication. Although most authors that we reviewed indicate that the year of publication was 1800, other authors mention its date of publication as 1798 (e.g. Pfeiffer 1873; Mueller 1882), 1799 (e.g. Clements & Shear 1931; Hart 1954; Parra & Escudero 1994) or 1799–1800 (e.g. Fischer 1886; Saccardo 1888). We agree with Kuntze's suggestion (1891: CXXXII) that this lack of accuracy in the dating of *Relation du Voyage* is principally due to the fact that this work used the date '*AN VIII DE LA RÉPUBLIQUE FRANÇOISE*', i.e. year 8 of the French Republic, on the title page. This date was based on the short-lived French republican calendar. When authors who cited the work converted the 'year 8' to the Gregorian calendar, the complication arose that the 'year 8' had been decreed to run from September 1799 to September 1800. The work could thus have been considered to have been published in two different years of the Gregorian calendar, which explains why Fischer (1886) and Saccardo (1888) chose to date it '1799–1800'. Kuntze (1891) provides other examples in which Pritzel (1872–1877) incorrectly dated works by Desfontaines, Lamarck, Pallas, and Ventenat, each of whom used the Republican calendar. Accordingly, in the absence of external information, *Relation du Voyage* could be considered to have been published in either 1799 or 1800.

Stafleu (1967) was first to publish more precise data about *Relation du Voyage*, indicating that the first text volume was published between 22 February and 4 March 1800, and the second text volume and the atlas in early April 1800. Stafleu writes 'Labillardière sent a copy of vol. 1 to Banks on 5 Mar 1800; it was announced for Ventôse (Feb–Mar 1800) in the *Journal Typographique* (3: 94. 5 Niv VIII. 26 Dec 1799). The same journal announces the completion (2 vols. & atlas) on Germ. VIII (5 Apr 1800)'. This presentation of the dating of each of the three volumes of the work led some nomenclatural experts (John David, pers. comm.) to consider that the separate parts of *Relation du Voyage* could not be treated as 'a single work'. As a consequence, while the name *aseroe* [sic, not capitalised] accompanied by its description could be considered validly published in volume 1 (because a new genus does not necessarily have to contain any subordinate taxa), the name *Aseroe rubra*, published in volume 2 (in the legend of the atlas plates), and also in the atlas, but without a description or diagnosis, should be considered an invalidly published name. This interpretation led to a search for subsequent works in which the species name was validly published. Surprisingly, such a search overlooks the fact that ever since the '*Règles internationales de la Nomenclature Botanique adoptées par le Congrès International de Botanique de Vienne 1905*' (Briquet 1906: Art. 37) up until the current ICN (Turland *et al*. 2025: Art. 38.9), 'the name of a new species or infraspecific taxon, published before 1 January 1908, may be validly published even if only accompanied by an illustration with analysis'. In the Vienna Rules (Briquet 1906: Art. 37) among the examples of valid publications we can read: '*Panax nossibiensis* Drake in Grandidier Hist. phys. nat. et polit. de Madagascar, vol. XXXV, y. V, III, 5e part pl. 406, ann 1896, publi*é* sous la forme d'une planche avec analyses' / *Panax nossibiensis*... published as a plate with analysis, an example which still holds under the current ICN (Turland *et al*. 2025: Art. 38, Ex. 18). The illustration of *Aseroe rubra* in the atlas meets requirements of ICN Art. 38.10, which indicates that 'an analysis is a figure or group of figures, commonly separated from the main illustration of the organism (though usually on the same page or plate), showing details aiding identification, with or without a separate caption (see also ICN Art. 38.11)', but, in addition, in accordance with ICN Art. 38.11, 'for organisms that are not vascular plants [as is the case of *Aseroe rubra*] a single figure that shows details that help identification is considered an illustration with analysis'. Thus, even for those who assumed that the atlas of *Relation du Voyage* was published later than volume 1 (in which the genus name *Aseroe* was validly published) *Aseroe rubra* would have counted as validly published in plate 12 of the atlas. The search for later works in which *Aseroe rubra* might be validly published was therefore unnecessary.

We do not know why Stafleu (1967) assumed that the first volume of text was published before the other two volumes, but after reviewing the documents he mentions and other additional evidence discovered during our research, we have not found any information that would suggest this. On the contrary, we have found evidence indicating that the entire work was published at the same time.


SOUS-PRESSE,

Pour paroître dans le courant de ventose prochain :

RELATION du Voyage à la recherche de la Pérouse, fait par ordre de l'Assemblée constituante pendant les années 1791 et 1792, et pendant la 1re. et la 2e. année de la République française ; par le cit. Labillardière, correspondant de la ci-devant académie des Sciences de Paris, membre de la Société d'histoire naturelle, et l'un des Naturalistes de l'expédition.

(96)

VOYAGES.

Relation du voyage à la recherche de la Pérouse, fait par ordre de l'assemblée constituante, pendant les années 1791 à 1794, par le cit. *Labillardière*, correspondant de la ci-devant académie des sciences de Paris, membre de la société d'histoire naturelle, et l'un des naturalistes de l'expédition. 2 vol. in 4°. papier grand raisin fin, avec un atlas in-fol. sur papier colombier. *Jansen*. 90 fr. broché en carton.

— Le même ouvrage, 2 vol. in-8. sur papier carré fin, avec l'atlas sur gr. raisin. 45 fr. cartonné.

Nous renvoyons nos lecteurs à ce que nous avons dit de cet ouvrage, (voyez deuxième année, numéro XI, page 323) en l'annonçant comme étant sous presse. Il est aujourd'hui livré au public, et obtiendra sans doute l'accueil qu'il mérite à tous égards.

Le texte est imprimé avec soin,

(67)

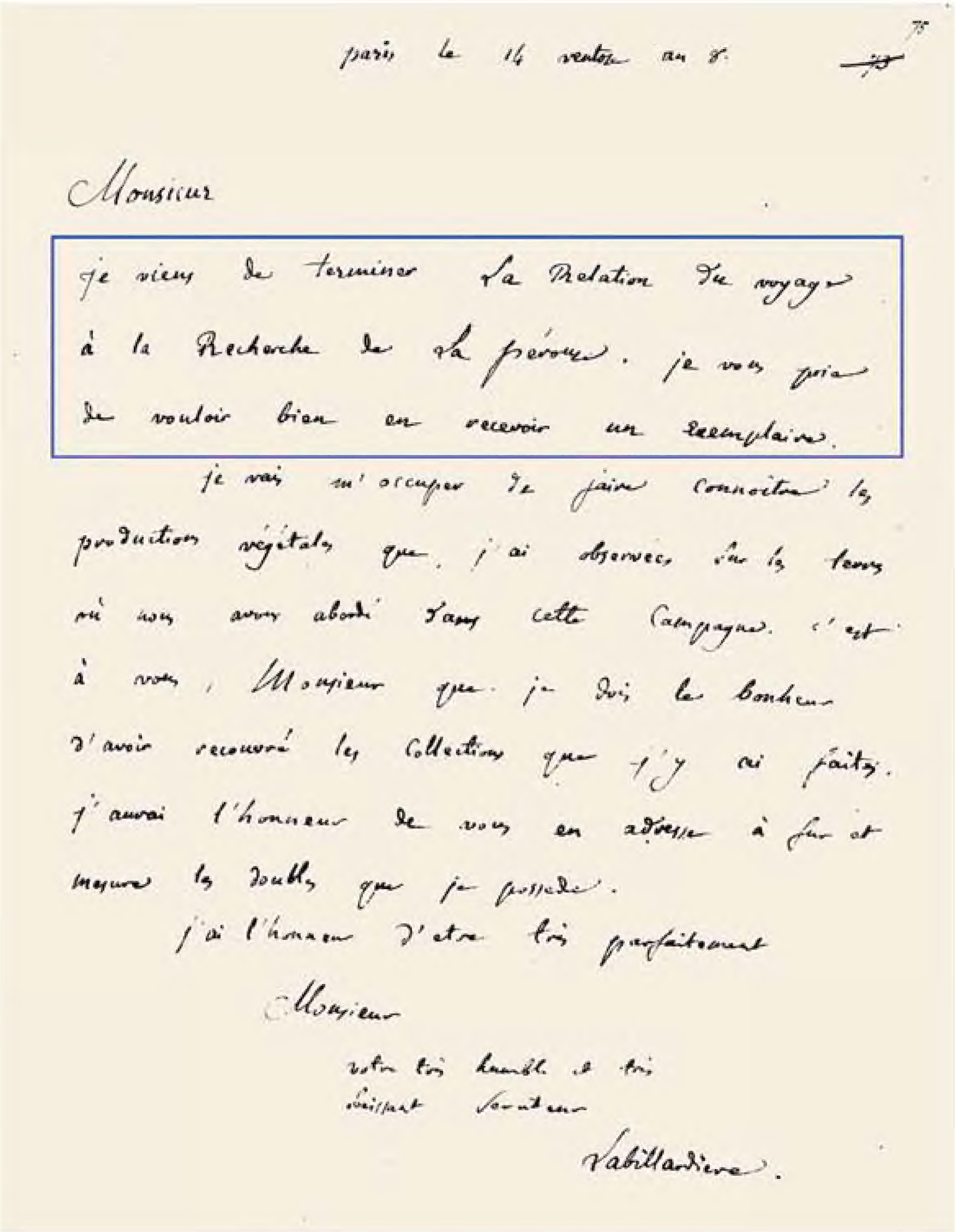
et l'atlas exécuté par les meilleurs artistes.

(Troisième Année. N°. XXVI.)

JOURNAL TYPOGRAPHIQUE ET BIBLIOGRAPHIQUE

LIVRES NOUVEAUX.

Figure 14. Announcements in contemporary French publishing journals regarding Labillardière's *Relation du Voyage*.
a. shortly before its publishing (Anon. 1799).
b. as just published (Anon. 1800a). **c.** indicating its various final formats, qualities and prices (Anon. 1800b).



75 ~~73~~

paris le 14 ventose an 8.

Monsieur

je viens de terminer la Relation du voyage à la Recherche de la pérouse. je vous prie de vouloir bien en recevoir un exemplaire.

je vais m'occuper de faire connoître les productions végétales que j'ai observées sur les terres où nous avons abordé dans cette Campagne. c'est à vous, Monsieur que je dois le bonheur d'avoir recouvré les Collections que j'y ai faites. j'aurai l'honneur de vous en adresser à fur et mesure les doubles que je possede.

j'ai l'honneur d'etre très parfaitement

Monsieur

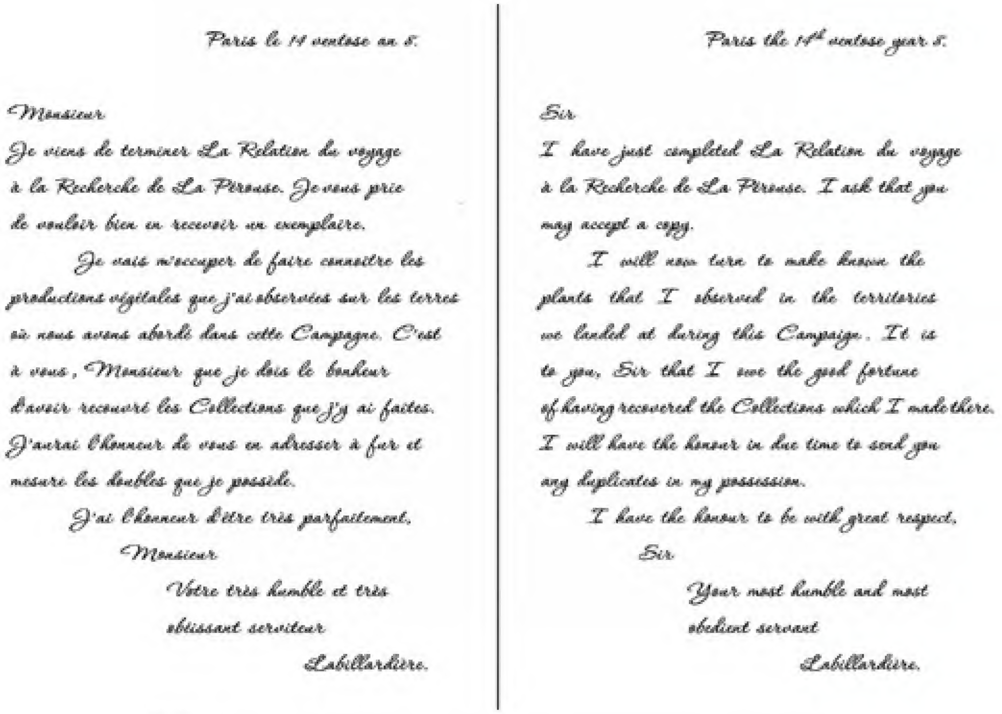
votre très humble & très
obéissant serviteur

Labillardiere.

Figure 15. Labillardière's letter of 5 March 1800 to Joseph Banks.

All the journals announcing that the work was to appear, or that it had already been published, always mention the three volumes. Thus, in the *Journal Typographique et Bibliographique*, published on '*5 nivose VIII*' (26 December 1799), cited by Stafleu (Anonymous 1799: 94–95), the appearance of *Relation du Voyage* is announced for '*ventôse VIII*' (February–March 1800), and it is explicitly indicated that '*cet ouvrage sera composé de* ***deux vol.*** *grand in 4º. sur papier grand-raisin fin,* ***et d'un Atlas*** *grand in-folio*' (…**two volumes** … **and an atlas…**) and that also '*Il y a une edition en* ***deux volumes*** *in grand-raisin 8º. sur papier carré fin,* ***avec l'atlas*** *sur grand-raisin*' (…**two volumes** … **with the atlas**…) adding that '*Les exemplaires seront délivrés suivant l'ordre des inscriptions, afin que les premières jouissent des premières* épreuves *de l'atlas*' / [the copies will be delivered according to the order of the subscriptions, so that the first subscribers enjoy the first print copies of the atlas (Figure 14a)]. Similarly, the *Journal de Physique, de Chimie, d'Histoire Naturelle et des Arts* published in '*nivose an VIII (1800 v[ieux]. st[yle].)*]', that is January 1800, indicated that '*Labillardière va bientôt faire paroître la relation de son voyage autour du monde, à la recherche de l'infortuné la Peyrouse et des ses compagnons*' / [Labillardière will soon publish an account of his voyage around the world, in search of the ill-fated La Pérouse and his companions (Delamétherie 1800: 42)]. This shows that the complete work was delivered to subscribers and that it was published at the latest in 1800. The first announcement that the work, consisting of three volumes, was already for sale, appears in the *Journal* Général *de la Littérature de France* (Anonymous 1800a: 67–68) in its issue for '*ventose an VIII*' (21 February – 20 March 1800), where it is announced that the long-awaited work '*est aujourd'hui livré au public*' / [has now been published], and is detailed as existing in two versions, either with the text volumes '*in 4º papier grand raisin fin*' and the atlas '*in-fol. sur papier colombier*', or with the text volumes '*in 8º sur papier carré fin*', and the atlas '*sur gr. raisin.*' (Figure 14b). Two weeks later, notice of its publication also appears in the *Journal Typographique et Bibliographique* (Anonymous 1800b: 202), published on '*15 germinal VIII*' (5 April 1800), also cited by Stafleu, and similarly indicating that the text exists in two formats, with the atlas '*in folio*' for both (Figure 14c).

As to Stafleu's claim that on 5 March 1800 Labillardière sent Banks a copy only of the first volume, this seemed unlikely given how very grateful Labillardière was to



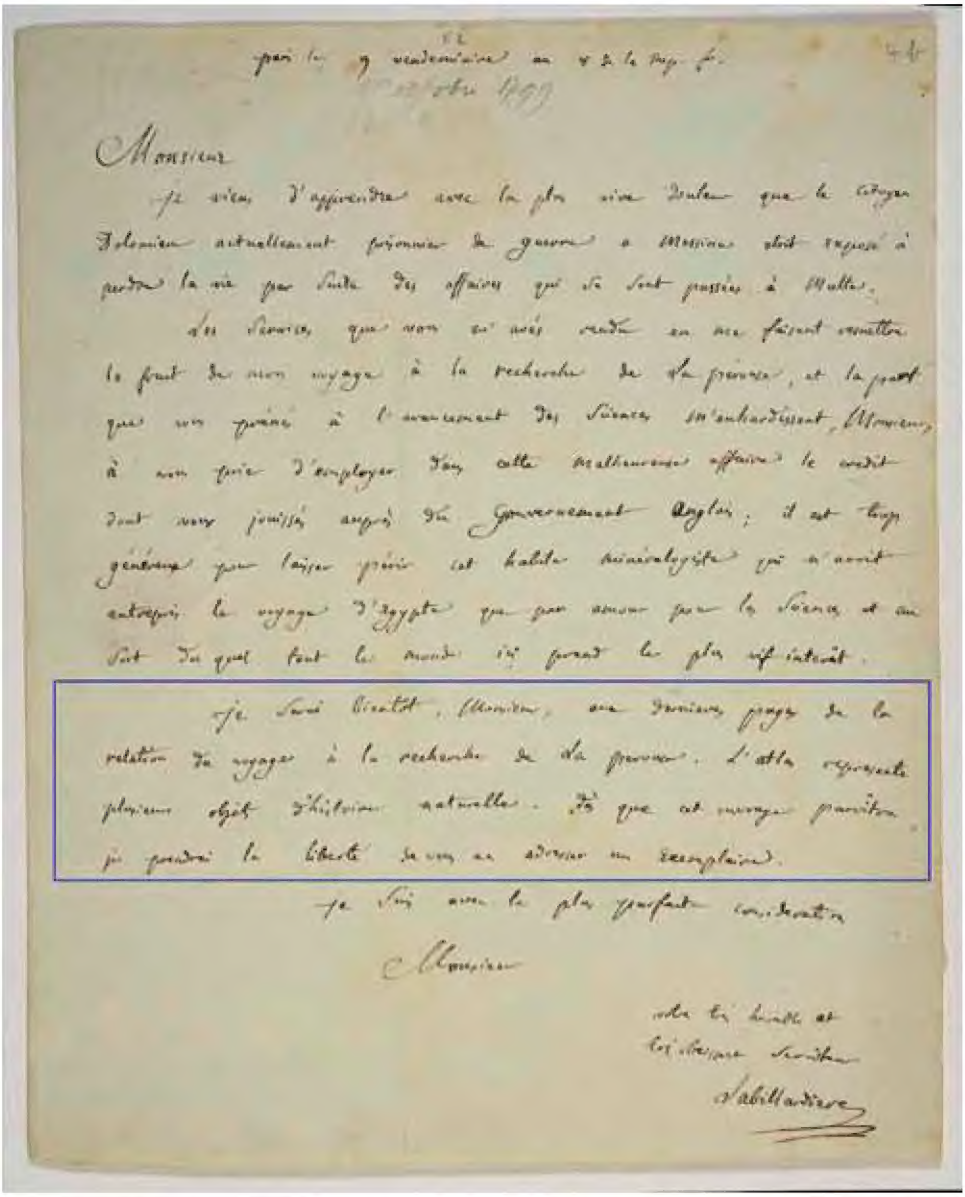
Paris le 14 ventose an 8.

Monsieur
Je viens de terminer La Relation du voyage
à la Recherche de La Pérouse. Je vous prie
de vouloir bien en recevoir un exemplaire.
Je vais m'occuper de faire connoître les
productions végétales que j'ai observées sur les terres
où nous avons abordé dans cette Campagne. C'est
à vous, Monsieur que je dois le bonheur
d'avoir recouvré les Collections que j'y ai faites.
J'aurai l'honneur de vous en adresser à fur et
mesure les doubles que je possède.
J'ai l'honneur d'être très parfaitement,
Monsieur
Votre très humble et très
obéissant serviteur
Labillardière.

Paris the 14th ventose year 8.

Sir
I have just completed La Relation du voyage
à la Recherche de La Pérouse. I ask that you
may accept a copy.
I will now turn to make known the
plants that I observed in the territories
we landed at during this Campaign. It is
to you, Sir that I owe the good fortune
of having recovered the Collections which I made there.
I will have the honour in due time to send you
any duplicates in my possession.
I have the honour to be with great respect,
Sir
Your most humble and most
obedient servant
Labillardière.

Figure 16. Transcription and literal English translation of the 5 March 1800 letter.



52

48

Paris le 9 vendémiaire an 8 de la Rep. f.

8bre 1799

Monsieur

Je viens d'apprendre avec la plus vive douleur que le citoyen Dolomieu actuellement prisonnier de guerre à Messine était exposé à perdre la vie par suite des affaires qui se sont passées à Malte.

Les services que vous m'avés rendu en me faisant remettre le fruit de mon voyage à la recherche de La Pérouse, et la part que vous prenés à l'avancement des sciences m'enhardissent, Monsieur, à vous prier d'employer dans cette malheureuse affaire le crédit dont vous jouissés auprès du Gouvernement Anglois; il est trop généreux pour laisser périr cet habile minéralogiste qui n'avoit entrepris le voyage d'Egypte que par amour pour les sciences et au sort duquel tout le monde ici prend le plus vif intérêt.

Je serai bientôt, Monsieur, aux dernières pages de la relation du voyage à la recherche de La Pérouse. L'atlas représente plusieurs objets d'histoire naturelle. Dès que cet ouvrage paroîtra je prendrai la liberté de vous en adresser un exemplaire.

Je suis avec la plus parfaite considération

Monsieur

votre très humble et
très obéissant serviteur
Labillardière

Figure 17. Labillardière's letter to Joseph Banks on 9 October 1799, in which by '*un exemplaire*' he refers to the three-volume work (State Library New South Wales 2019+).

Banks for the efforts he made to recover his collections, as related in a previous section. Along with the copy of his work, Labillardière sent Banks a letter from Paris, dated '*14 ventose an 8*' (5 March 1800). This letter is referenced by Dawson (1958: 514) with the code 'B.M. Add. MS. 8099.75' (British Museum Additional Manuscript Series 8099. 75), now deposited in the British Library (2012+a). The British Library provided a copy of the original letter (Figure 15) from which we made a transcription of the French text and a literal translation into English (Figure 16). In this letter Labillardière informed Banks that he has just finished *Relation du Voyage* and asks him to accept the gift of a copy. Literally Labillardière wrote '*Je viens de terminer La Relation du voyage* à *la Recherche de La Pérouse. Je vous prie de vouloir bien en recevoir un exemplaire.*' / [I have just completed La Relation du voyage à la Recherche de La Pérouse. I ask that you may accept a copy]. Stafleu may have interpreted '*un exemplaire*' in the strictest sense, that is, one single volume. However, Labillardière himself left no room for doubt about what he considered '*un exemplaire*' when months earlier he wrote Banks a letter dated '*9 vendimiaire an 8*' (9 October 1799) to thank him for the return of the collections. In this letter (State Library New South Wales 2019+) Labillardière writes '*Je serai bientôt, Monsieur, aux dernieres pages de la relation du voyage à la recherche de La Perouse. L'atlas represente plusieurs objets d'histoire naturelle. Dès que cet ouvrage paroîtra je prendrai la liberté de vous en adresser un exemplaire.*' / [I will soon be, Sir, at the last pages of the account of the voyage in search of La Perouse. The atlas represents several objects of natural history. As soon as this work will be published, I will take the liberty of sending you a copy]. This letter clarifies that to Labillardière '*un exemplaire*' refers to all three volumes (Figure 17).

To confirm that Banks received the three volumes of *Relation du Voyage* we consulted the catalogue of works in Banks' library, published by Dryander (1800: 515). In this catalogue it is mentioned that Banks had in his library the three volumes of the original French edition of *Relation du Voyage* composed of the two volumes of text in-4º and the atlas in folio, which was the most expensive edition (Anonymous 1800b, 1800c). A copy of this catalogue was donated to the Royal Society on 6 November 1800 (Anonymous 1801: 451) by Banks, and in it the works with the latest dates are from June 1800 – so Banks already had the *Relation du Voyage* in his possession before the end of June 1800. Banks' library is now held at the British Library (Rosie Jones, pers. comm.) and includes three copies of the two volumes of Labillardière›s text (all in 4º) and three copies of the atlas (British Library 2012+a). Banks' works can be identified by the personal stamp he applied on different pages of the works he owned, imprinting 'Jos: Banks' inside a rectangle (Figure 18). We contacted the British Library's Rare Books department and Aimee Burnett (pers. comm.) confirmed that three items identified as 985.f.20 (first text volume), 985.f.21 (second text volume) and 74/460.h.5 (atlas) all bear Banks' distinctive stamp.

Having ascertained that Banks was in possession of the three volumes of the original 1800 French edition of the *Relation du Voyage*, we have further confirmation that he received them simultaneously thanks to a letter mentioned by Duyker (2003: 226) in the possession of Jeremy R. H. Spencer (Figure 19). Labillardière sent this to an unknown correspondent on 11 February 1802 and pointed out '*aussitôt que j'eus publié mon voyage à la Recherche de La Pérouse, je profitai d'un envoi de cet ouvrage que mon imprimeur Jansen faisait à Deboffe, dont la demeure est dans Gerard* [now Gerrard] *Street, pour en adresser à monsieur Banks un exemplaire avec une lettre de ma part.*' / [as soon as I had published my voyage à la Recherche de La Pérouse, I took advantage of a shipment of this work which my printer Jansen was making to Deboffe[15], who resides in Gerrard Street, to send a copy of it to Mr. Banks along with a letter from me]. This letter is important because Labillardière explicitly mentions that *Relation du Voyage* had already been published and that he sent his work via his printer Jansen, who sent it to Deboffe for the latter to deliver to Banks. Again, Labillardière explicitly mentions that he sent Banks his work (not just a part of his work) '*voyage à la Recherche de La Pérouse*' and finally Labillardière also confirms that he sent the letter dated 5 March 1800 along with it. There are other letters between Labillardière and Banks between 5 March 1800 and 11 February 1802, but none

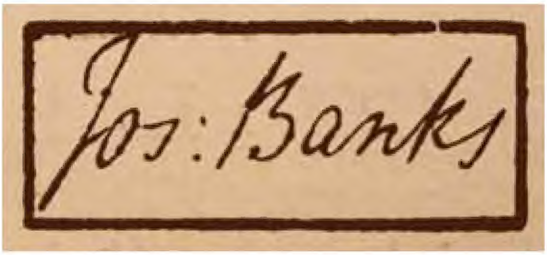


Figure 18. Joseph Banks' personal stamp, as found in his copies of *Relation du Voyage*, and of its translation published by Debrett, *An Account of a Voyage in Search of La Pérouse*, all held at the British Library (2012+a, 2012+b).

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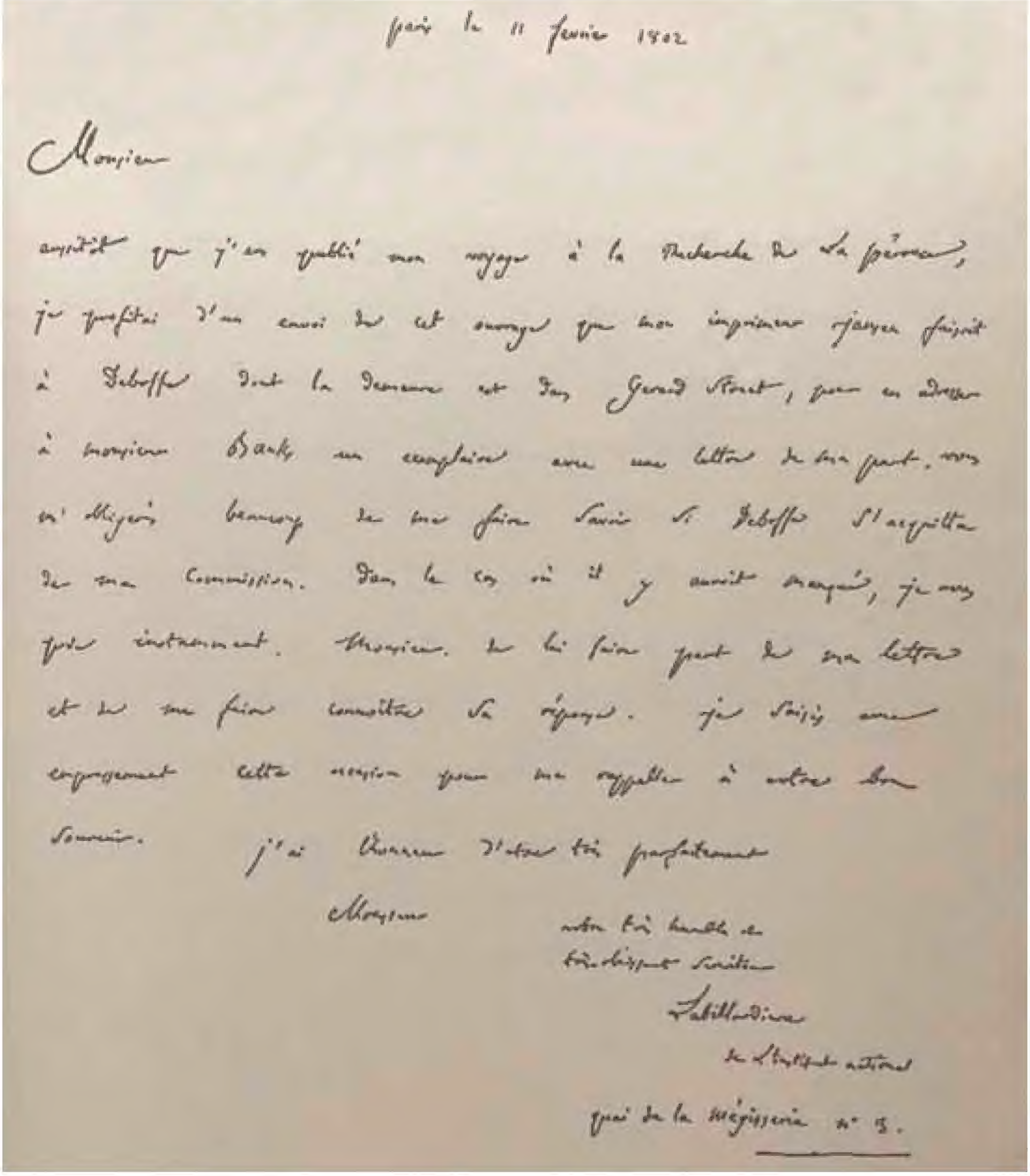
[15] Joseph Deboffe was a London bookseller, specialised in French books (Duyker 2003: 313, note 23), who lived at 7 Gerard Street (now Gerrard Street), Soho, from 1792 to 1807 (Levere *et al.* 2016: 201, note 99), just 400 metres from Banks' residence at 32 Soho Square. From his court testimony in 1793 (Howell 1818: 541–542) we know he was a Swiss émigré bookseller stocking foreign publications, some of which he received from Paris, and that he was familiar with the French language. Considering these circumstances, and given his direct involvement with the publishing of *Relation du Voyage*, as evinced by the presence of the imprint '*À Londres chez Deboffe*' on the title page of the original French-language London issue (Stafleu & Cowan 2009), he is a plausible candidate for the anonymous 'translator' who briefly prefaces (and dedicates to Joseph Banks) the 1800 English translation of Labillardière's work published by Debrett.

of them mention sending other copies or volumes of *Relation du Voyage*, dealing instead with the sending of duplicates of material from Labillardière's herbarium that he had promised to Banks, or other matters.

With all of the above, we have solid evidence that Labillardière sent his work to Banks at the latest on 5 March 1800, and that what he sent was his complete work.

As a result of the three volumes being published simultaneously, at latest on 5 March 1800, *Aseroe rubra* was validly published on page 104 of the second volume, where the name is mentioned in the list of illustrations, given that *Aseroe* and *A. rubra* met the three requirements of ICN Art. 38.6 for a *descriptio generico-specifica*, because 'the genus is at this time monotypic, no other names (at any rank) have previously been



paris le 11 fevrier 1802

Monsieur

aussitôt que j'ai publié mon voyage à la Recherche de La pérouse, je profitai d'un envoi de cet ouvrage que mon imprimeur Jansen faisait à Deboffe dont la demeure est dans Gerard Street, pour en adresser à monsieur Banks un exemplaire avec une lettre de ma part. vous m'obligerez beaucoup de me faire savoir si Deboffe s'acquitta de sa Commission. Dans le cas où il y aurait manqué, je vous prie instamment, Monsieur, de lui faire part de ma lettre et de me faire connaître sa réponse. je saisis avec empressement cette occasion pour me rappeller à votre bon souvenir.

j'ai l'honneur d'être très parfaitement

Monsieur

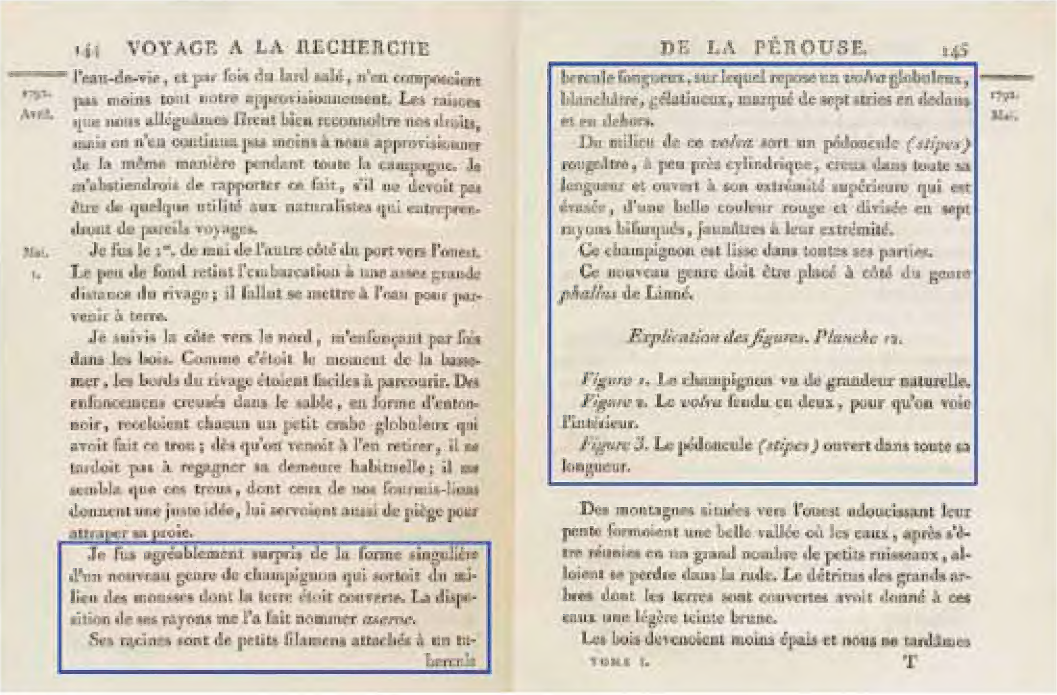
votre très humble et
très obéissant serviteur
Labillardière
de l'Institut national
quai de la Mégisserie n° 13.

Figure 19. In Labillardière's letter of 11 February 1802 (copy held by J. R. H. Spencer, Canberra), he relates having gifted a copy of his *Relation du Voyage* (again, '*un exemplaire*') to Banks at its publishing, along with an accompanying letter, on 5 March 1800.

validly published based on the same type, and the names of the genus and species otherwise fulfil the requirements for valid publication'.

The sentence (a) in Art. 38.6 of the Madrid ICN specifying that 'the descriptio generico-specifica accompanies the names of the taxa described', gave us pause, unsure whether this referred to the same page or the same work/date; *Aseroe* and *A. rubra* were published on different pages, indeed, in different volumes, but in the same work and on the same date. However, the last clause of the same article, 'reference instead to an earlier description or diagnosis is not acceptable' led us to think that the correct interpretation of 'must accompany' is that both names are published in the same work, contemporaneously. John McNeill (pers. comm.) confirmed that in the case of *Aseroe* and *A. rubra*, ICN Art. 38.6 is applicable since both names were published on the same date and within the same work, regardless of the fact that the genus name *Aseroe* and the single description were published on pages 144–145 (Figure 20) in the first volume, and the name *A. rubra* only mentioned in the second volume and on the plate (Figure 21).

In the original Jansen editions of 1800, some copies give the address as *rue des Maçons*, while others have the address as *rue des Pères* (Table 2). In these original editions, the pages where *Aseroe* and *Aseroe rubra* are cited do not differ according to the publisher's address but there are differences across the different formats (4º or 8º). Specifically, the page on which the name *Aseroe* appears is p. 144 in the quarto editions but p. 145 in the ocatavo editions and the name *Aseroe rubra* appears in the posterior part of the second volume on p. 104 in the table of plates in the quarto edition but p. 100 in the octavo editions. It should be noted that in the '*tome second*' there are two parts paginated independently which necessitates reference to the 'posterior part' of this '*tome second*', which is dedicated to vocabularies, measurement tables and the '*table des planches*' / [table of the plates] in which the name *Aseroe rubra* is mentioned. There is also a difference on the title page of the Atlas, where most copies indicate '*Imprimé chez P. Dien*' but at least one copy (Quimper, see Table 2) has '*Imprimé chez*' not followed by any text. Taking all this into account, the complete and direct reference to the place of publication of both names needs to be more



144 VOYAGE A LA RECHERCHE

1793. Avril. l'eau-de-vie, et par fois du lard salé, n'en composoient pas moins tout notre approvisionnement. Les raisons que nous alléguâmes firent bien reconnoître nos droits, mais on n'en continua pas moins à nous approvisionner de la même manière pendant toute la campagne. Je m'abstiendrois de rapporter ce fait, s'il ne devoit pas être de quelque utilité aux naturalistes qui entreprendront de pareils voyages.

Mai. 1. Je fus le 1er. de mai de l'autre côté du port vers l'ouest. Le peu de fond retint l'embarcation à une assez grande distance du rivage; il fallut se mettre à l'eau pour parvenir à terre.

Je suivis la côte vers le nord, m'enfonçant par fois dans les bois. Comme c'étoit le moment de la basse-mer, les bords du rivage étoient faciles à parcourir. Des enfoncemens creusés dans le sable, en forme d'entonnoir, recéloient chacun un petit crabe globuleux qui avoit fait ce trou; dès qu'on venoit à l'en retirer, il ne tardoit pas à regagner sa demeure habituelle; il me sembla que ces trous, dont ceux de nos fourmis-lions donnent une juste idée, lui servoient aussi de piège pour attraper sa proie.

Je fus agréablement surpris de la forme singulière d'un nouveau genre de champignon qui sortoit du milieu des mousses dont la terre étoit couverte. La disposition de ses rayons me l'a fait nommer *aseroe*.

Ses racines sont de petits filamens attachés à un tubercule

bercule

DE LA PÉROUSE. 145

1793. Mai. bercule fongueux, sur lequel repose un *volva* globuleux, blanchâtre, gélatineux, marqué de sept stries en dedans et en dehors.

Du milieu de ce *volva* sort un pédoncule (*stipes*) rougeâtre, à peu près cylindrique, creux dans toute sa longueur et ouvert à son extrémité supérieure qui est évasée, d'une belle couleur rouge et divisée en sept rayons bifurqués, jaunâtres à leur extrémité.

Ce champignon est lisse dans toutes ses parties.

Ce nouveau genre doit être placé à côté du genre *phallus* de Linné.

Explication des figures. Planche 12.

Figure 1. Le champignon vu de grandeur naturelle.

Figure 2. Le *volva* fendu en deux, pour qu'on voie l'intérieur.

Figure 3. Le pédoncule (*stipes*) ouvert dans toute sa longueur.

Des montagnes situées vers l'ouest adoucissant leur pente formoient une belle vallée où les eaux, après s'être réunies en un grand nombre de petits ruisseaux, alloient se perdre dans la rade. Le détritus des grands arbres dont les terres sont couvertes avoit donné à ces eaux une légère teinte brune.

Les bois devenoient moins épais et nous ne tardâmes

TOME I. T

Figure 20. On pages 144–145 of the first tome of *Relation du Voyage* Labillardière names the new genus *Aseroe*, and describes the type specimen, with reference to plate 12 of the Atlas.

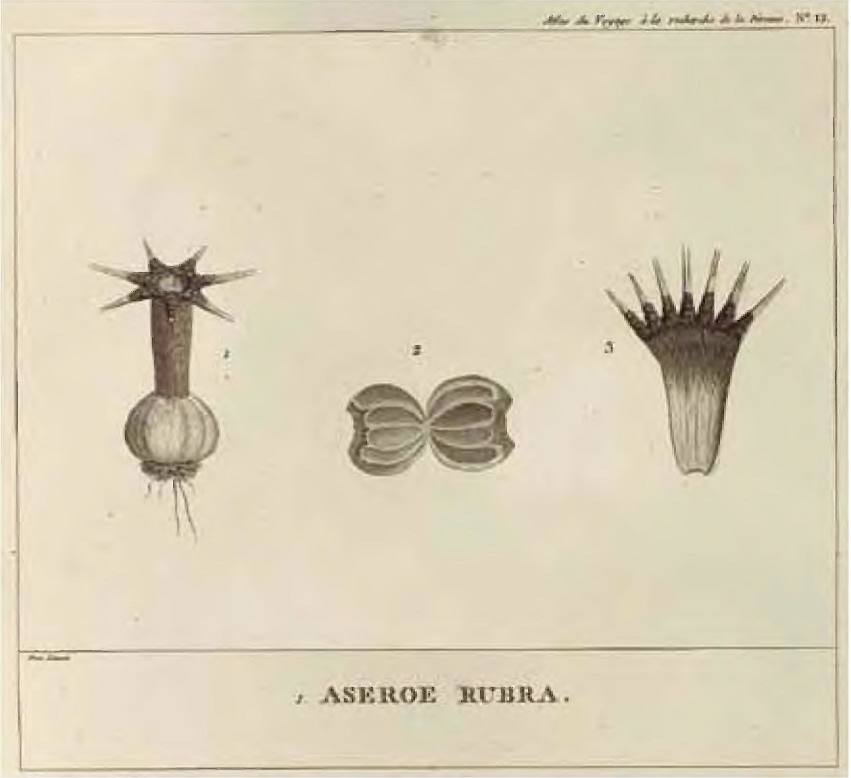

Atlas du Voyage à la recherche de la Pérouse. N° 12.
1
2
3
1 ASEROE RUBRA.

Figure 21. Plate 12 of the Atlas, with *Aseroe rubra* as drawn by Piron (‘*Piron delineavit*’), with analytical detail (figs. 1, 2, 3). Biblioteca Digital del Real Jardín Botánico de Madrid (2005+).

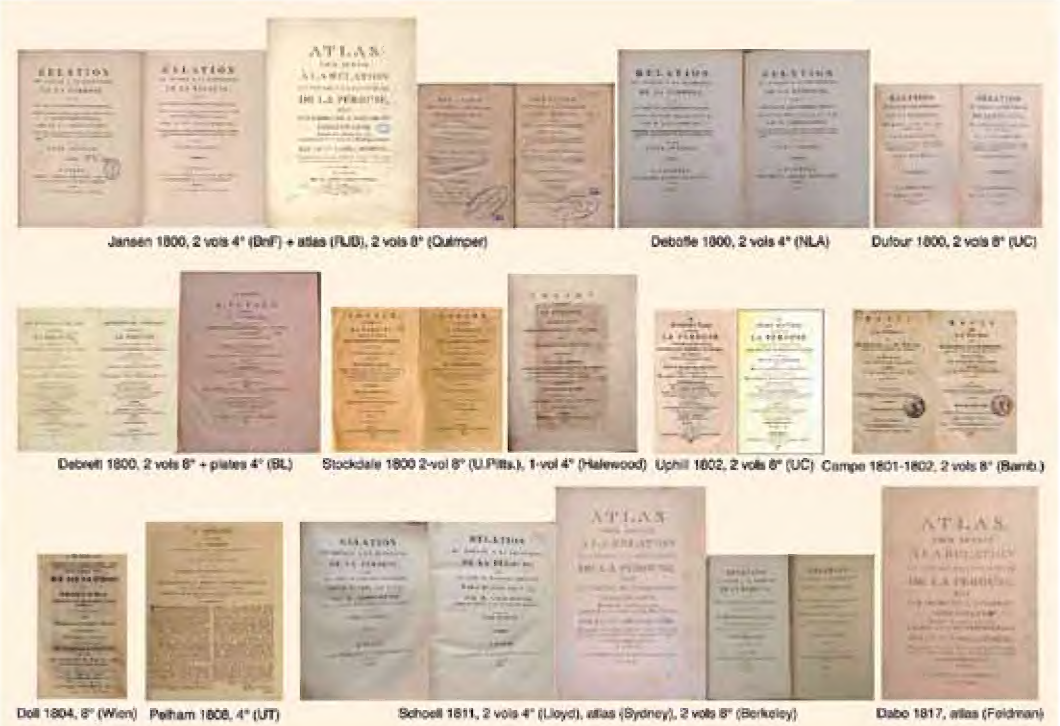

Jansen 1800, 2 vols 4° (BnF) + atlas (RJB), 2 vols 8° (Quimper)
Deboffe 1800, 2 vols 4° (NLA)
Dufour 1800, 2 vols 8° (UC)
Debrett 1800, 2 vols 8° + plates 4° (BL)
Stockdale 1800 2-vol 8° (U.Pitts.), 1-vol 4° (Halewood)
Uphill 1802, 2 vols 8° (UC)
Campe 1801-1802, 2 vols 8° (Bamb.)
Doll 1804, 8° (Wien)
Pelham 1808, 4° (UT)
Schoell 1811, 2 vols 4° (Lloyd), atlas (Sydney), 2 vols 8° (Berkeley)
Dabo 1817, atlas (Feldman)

Figure 22. The comprehensive collection of title pages of the 19th century editions and translations of Labillardière’s *Relation du Voyage*, as detailed and referenced in Tables 1 and 2.

precise than usual. Since Labillardière sent Banks a copy of the two text volumes that had just been published by Jansen in 4º format with the address '*Rue des Maçons*', this edition should be chosen for the complete and direct reference – the very set that is in the British Library with the shelfmarks 985.f.20 ('*tome premier*') / [first volume], 985.f.21 ('*tome second*') / [second volume], plus the accompanying atlas of plates at shelfmark 74/460.h.5. This British Library set is not accessible online, but identical sets held at the library of the *Real Jardín Botánico* in Madrid and at the *Bibliothèque Nationale de France* in Paris can be consulted online (Biblioteca Digital del Real Jardín Botánico 2005+; Bibliotheque nationale de France – Gallica 2014) (Table 2).

A complete reference to the work and publication date of *Aseroe* and *Aseroe rubra,* respectively, would be the following:

***Aseroe* Labill., Relation du Voyage à la Recherche de La Pérouse, Chez H. J. Jansen, Rue des Maçons, in** 4º. **Tome premier: 144. 5 March 1800. ['*aseroe*'].**

***Aseroe rubra* Labill., Relation du Voyage à la Recherche de La Pérouse, Chez H. J. Jansen, Rue des Maçons, in** 4º. **Tome premier: 144; Tome second, posterior part 'Table des Planches': 104. 5 March 1800.**

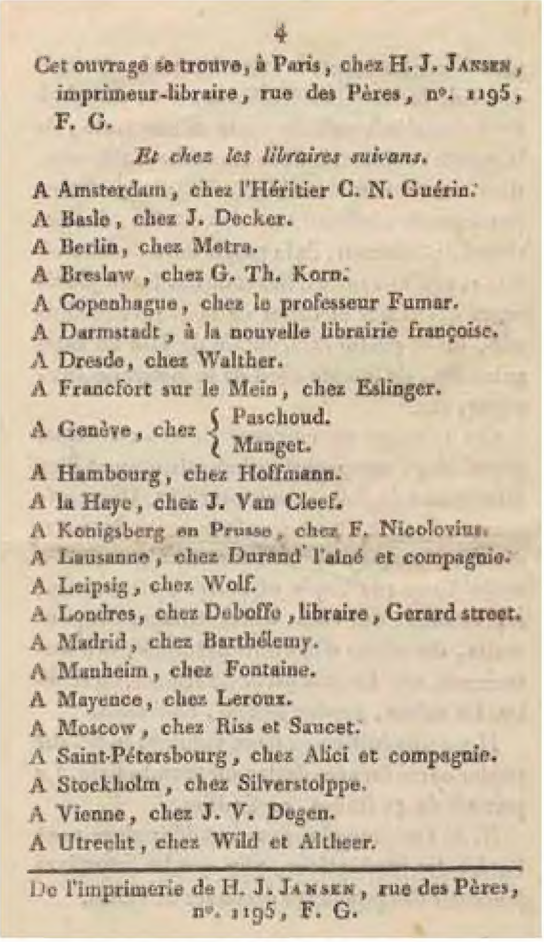
Even if our interpretation of ICN Art. 38.6 is not admitted, *A. rubra* (and *Aseroe*) would still be validly published on the same date, in the Atlas volume, as the name *Aseroe rubra* appears on figures 1–3 of plate 12 (Figure 21), which must be considered an 'illustration with analysis', in lieu of a description or diagnosis, in accordance with ICN Art. 38.8–38.11 as already mentioned. Therefore, a simpler, complete and direct reference (for both *Aseroe* and *Aseroe rubra*), which we recommend because it does not change with the different formats and editions from 1800, is:

***Aseroe* Labill., Relation du Voyage à la Recherche de La Pérouse, Atlas: pl. 12, figs. 1–3. 5. March 1800.**

***Aseroe rubra* Labill., Relation du Voyage à la Recherche de La Pérouse, Atlas: pl. 12, figs. 1–3. 5 March 1800.**

After the original French version was published in 1800, contemporary translations appeared in English, as well as further editions in French, English and German in following years (Figure 22), as reported in the principal reference sources (Boucher 1808: 154–155; Sabin 1868: 564–565; Ferguson 1941, 1986; Duyker 2003: 226; Stafleu & Cowan 2009; Hunt Institute 2020+; Worldcat 2006+), though none are as comprehensive as Tables 1 and 2, compiled by one of the authors of the present study (P. R.). The publication of *Relation du Voyage* occurred at an age in which copyright norms were far from established in local markets and absent between countries, making it debateable whether or not the subsequent publications of Labillardière's work were fully authorised or simply rogue editions.

Jansen found a ready group of francophile booksellers eager to partake in profiting from the work's wider circulation within Europe (Figure 23): alongside



4

Cet ouvrage se trouve, à Paris, chez H. J. Jansen,
imprimeur-libraire, rue des Pères, nº. 1195,
F. G.

Et chez les libraires suivans.

A Amsterdam, chez l'Héritier C. N. Guérin.
A Basle, chez J. Decker.
A Berlin, chez Metra.
A Breslaw, chez G. Th. Korn.
A Copenhague, chez le professeur Fumar.
A Darmstadt, à la nouvelle librairie françoise.
A Dresde, chez Walther.
A Francfort sur le Mein, chez Eslinger.
A Genève, chez { Paschoud. Manget.
A Hambourg, chez Hoffmann.
A la Haye, chez J. Van Cleef.
A Konigsberg en Prusse, chez F. Nicolovius.
A Lausanne, chez Durand l'ainé et compagnie.
A Leipsig, chez Wolf.
A Londres, chez Deboffe, libraire, Gerard street.
A Madrid, chez Barthélemy.
A Manheim, chez Fontaine.
A Mayence, chez Leroux.
A Moscow, chez Riss et Saucet.
A Saint-Pétersbourg, chez Alici et compagnie.
A Stockholm, chez Silverstolppe.
A Vienne, chez J. V. Degen.
A Utrecht, chez Wild et Altheer.

De l'imprimerie de H. J. Jansen, rue des Pères,
nº. 1195, F. G.

Figure 23. Paris publisher H. J. Jansen's *'Prospectus'* announced Labillardière's imminent work, detailing the contents of its three volumes, the available formats, paper quality and respective prices, while also advertising its Europe-wide availability via a network of booksellers he planned to involve (Jansen 1799–1800).

the already noted '*Londres*' edition, for which Joseph Deboffe produced 8º and 4º copies of the French original published in London, another cosmopolitan Parisian bookseller colleague, Jacques-Edme Gabriel Dufour, published an edition of the French text volumes locally in Amsterdam, a version of the work that has been omitted in bibliographic reference works, but which survives in hardcopy at the University of Cincinnati (see Table 2).

So as not to miss the moment, two independent translators and teams of engravers in London raced to complete competing English editions that were published the same year as the French original, John Debrett issuing the text volumes (in 8º and 4º versions) accompanied by a 4º '*Collection of the plates*' that matched those of the original atlas – except for some modesty censorship of a full-figure portrait of an Admiralty islander and an inadvertent misgendering (Collins 1998) – whereas rival publisher John Stockdale chose to publish a larger-format one-volume 4º edition with the plates (featuring an additional modesty-crop of a Tasmanian woman and child) as interspersed illustrations, and a similar 8º two-volume edition. A second English edition of the text volumes, with Debrett's translation, was published by Benjamin Uphill in 1802, and the same text was later reprised in condensed form in Cavendish Pelham's 1808 *The World: or, The present state of the universe*, while two separate German editions were published by August Campe in 1801–1802, and Anton Doll in 1804 (Boucher de la Richarderie 1808: 154–155; Sabin 1868: 564–565; Ferguson 1941, 1986; Duyker 2003: 226; Stafleu & Cowan 2009).

By 1810 Jansen had left the publishing business, becoming one of Napoleon's censors (Hesse 1991), and Paris publisher Frederic Schoell acquired the remaining stock of the original *Relation du Voyage* print-run, issuing a full 'rebrand' of Jansen's volumes in their various formats in 1811 (Anonymous 1811: 207), as part of an attempt to save his foundering operations (Leitner 2000: 40). The 1817 edition by Dabo only of the atlas of plates was therefore likely a similar, rebranded issue (Ferguson 1986). Labillardière's *Relation du Voyage* continues to enjoy English editions throughout the ages, a facsimile reprint of Stockdale's 1-volume version having been published by Nico Israel/Da Capo in 1971, and Pergamon, Gale and Cambridge University Press issuing subsequent microfilm, digital and web re-editions of the Stockdale and Debrett translations, respectively, in 1983, 2005 and 2014. The details and whereabouts of all the various editions, including all currently available online copies and some principal library copies, are summarised in Supplementary Tables 1 and 2 (see below).

With the actual publication date of the three original volumes of *Relation du Voyage* clarified, given the importance of Index Fungorum and MycoBank as official repositories of fungal names and sources consulted by the worldwide community of mycologists, we want to point out some mistaken references to the place of publication of *Aseroe* and *A. rubra* found in both, as well as in other reference works on Gasteromycetes.

A significant error appears in Index Fungorum (2009+c; 2009+d) where the author (Labill.) and the year (1800) of publication of *Aseroe* and *A. rubra* are correctly cited, but the work and page indicated are extraneous, being the first issue of the *Bulletin de la Murithienne: Société Valaisanne des Sciences Naturelles* (as *Bull. Murith. Soc. Valais. Sci. Nat.*) which was published in 1868 (as '*Guide du botaniste sur le grand St.-Bernard*') and contained only 53 pages. This is clearly a mistake in the way that the underlying database of publications has been called up but is nevertheless misleading. In addition, it is indicated that the name *Aseroe rubra* is sanctioned by Fries, when the sanctioning author of Gasteromycetes is Persoon (May *et al*. 2019), who mentioned neither *Aseroe* nor *A. rubra* in his sanctioning work (Persoon 1801). The error is significant because we have found recent works in which this erroneous bibliographical reference is republished (Picciola *et al.* 2016: 47; Bautista-Hernández 2018: 31).

Likewise, in MycoBank (2004+a; 2004+b) we find erroneous data in the reference to the place of publication of *Aseroe*. The reference for the publication of *Aseroe rubra* is '*Aseroe rubra* Labill., Rélation du voyage …: 145, tab. 12, figs 1-3 (1800)' which includes the correct citation of the plate where the binomial is mentioned. However, the reference given for the genus is: '*Aseroe* Labill., Nov. holland. pl. spec.: 124 (1806)', which is a later date than that given for *Aseroe rubra*. If this citation were correct, by application of ICN Art. 38.13 *A. rubra* would be an invalidly published species name, since the genus name *Aseroe* would not have been previously or simultaneously published with the species name, as dictated by the first clause of the Article.

Similarly, Farr & Zijlstra's (1996) citations of the authorship of both *Aseroe* and *A. rubra* in their *Index Nominum Genericorum*, as 'Labillardière ex Massé in F. Cuvier, Dict. Sci. Nat. 3: 205. 30 Jan 1805' and 'Labillardière ex E. M. Fries (Syst. Mycol. 2: 285. 1823)' respectively, are erroneous. These citations reflect the earliest publications of the relevant names post 31 December 1801, which until 1981 was the nomenclatural starting point for Gasteromycetes. However, by the time Farr & Zijlstra's work was published the starting point had reverted to 1 May 1753.

Some authors between 1910 and 1981 considered that in 1800 both the name *Aseroe* and *A. rubra* were invalidly published by Labillardière and attributed the authorship of these names either to another validating author, or a validating author preceded by 'Labill. ex'. This was because at the Brussels International Botanical Congress, held in 1910, the starting point for the nomenclature of Gasteromycetes was changed from Linnaeus' *Species Plantarum* (1 May 1753) to Persoon's *Synopsis Methodica Fungorum* (considered to be published on 31 December 1801). This decision lasted until the Sydney International Botanical Congress, held in 1981, at which time the starting point for the nomenclature of Gasteromycetes reverted to Linnaeus' *Species Plantarum* (1753). In that period 1910–1981, as *Aseroe* and *A. rubra* had been published by Labillardière in 1800, before Persoon's *Synopsis Methodica Fungorum* (1801), the two names had been considered invalidly published. Thus, Cunningham (1931b) cited both names with the following reference: 'Labillardière Ex. Fr., Syst. Myc., ii, 1822 [sic for 1823], p. 285', in the belief that Fries was the first author to validly publish them after 1801, and Dring (1980) cited both names with the following reference: 'Labillardière *Novae Hollandiae Plantarum Specimen* 2: 124. 1806', although for *Aseroe* he unnecessarily includes 'ex Fries, *Systema Mycologicum* 2: 289 [sic for 285] (1823)'. Since volume 2 of *Novae Hollandiae Plantarum Specimen* was published in 1806, thus after the 1801 starting point of the nomenclature of Gasteromycetes in force at the time, Labillardière should have qualified as the 1806 validating author himself. Calonge *et al.* (2005), reprising Dring, incorrectly cited the reference '*Novae Hollandiae Plant. Spec.* 2: 124. 1806' for *Aseroe rubra,* despite the fact that by 2005 the nomenclatural starting point for Gasteromycetes had reverted to Linnaeus' *Species Plantarum* (Linnaeus 1753), and thus *Relation du Voyage* should have been cited. Moreover, none of the cited authors publishing between 1910 and 1981 provided what would have been the correct references for the names *Aseroe* or *A. rubra* at the time. Given that the English translation of *Relation du Voyage* saw a 'second edition' published in 1802 (consisting of the two volumes of text and the list of the illustrations in volume I, without the atlas) and thus after the starting point of the nomenclature of Gasteromycetes in force at the time, between 1910 and 1981 the correct references would have been:

***Aseroe* Labill., An Account of a Voyage in Search of La Pérouse. Volume I (ed. 2): 156. 1802** and ***Aseroe rubra* Labill., An Account of a Voyage in Search of La Pérouse. Volume I (ed. 2): xlii. 1802**.

Aseroe, a surviving name

Despite the fact that Léveillé (1842) and Montagne (1845a) erroneously indicated the name *Aseroe* was derived from its unpleasant, nauseating odour – a character that Labillardière failed to mention in the description of the genus – the apparent corroboration their vivid etymology lent to the peculiar spelling published by Labillardière ensured there were no attempts to correct the singularly derived name over time, since all those who studied any of the species described in the genus found their odour indeed strikingly unpleasant. Not only did the spelling of *Aseroe* remain unchallenged and unaltered, but it served as an inspiration for the creation of other names for fungi taxonomically related to *Aseroe* at different ranks.

At the rank of genus, there is:

Aserophallus Lepr. & Mont. in Mont., *Annales des Sciences Naturelles, Botanique*, série 3, 4: 360 (1845)

Type: *A. cruciatus* Lepr. & Mont. in Mont., *Annales des Sciences Naturelles, Botanique*, série 3, 4: 361 (1845); ≡ *Lysurus cruciatus* (Lepr. & Mont.) Henn., *Hedwigia* 41(5): 172 (1902).

For Leprieur and Montagne (Montagne 1845b) this genus had affinities with *Aseroe* and *Phallus* L., hence its name.

The genus name *Aserocybe* Lév (Léveille 1855: 109),

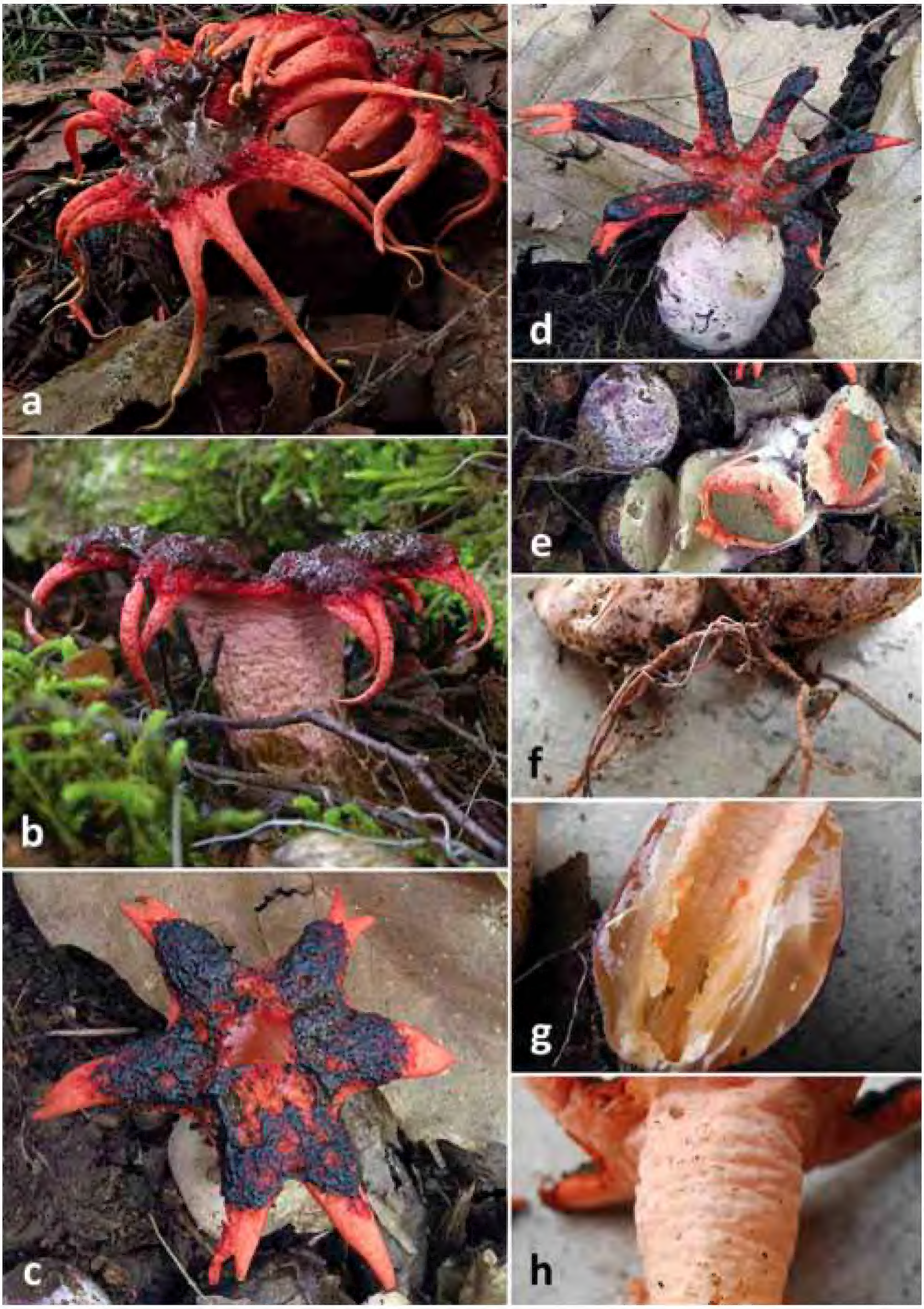


Figure 24. *Aseroe rubra* and its morphological traits. **a.** basidiomes with thin, long arms fused only at the base, and central gleba. **b.** basidiome as in **a.**, but with short arms. **c.** basidiomes with thick, short arms, bifid at the tips or not, with central gleba, very similar to the illustration in Labillardière's *Relation du Voyage* (Figure 21). **d.** basidiome with thick, long arms, bifid at the tips or not, with radial gleba, very similar to the 'Auckland variant' of *Anthurus archeri* from New Zealand. **e.** immature egg-like basidiomes, on the left with white exoperidium discolouring lilac upon handling, and in section on the right. **f.** abundant basal rhizomorphs. **g.** longitudinal section at the base of a mature basidiome, showing the gelatinous volviform exoperidium and the hollow pseudostipe. **h.** external view of the corrugate pseudostipe with some minute pores.
Photographs: **a.** G. Gates at Pipeline Track, Mt. Wellington, Hobart, Tasmania. **b.** T. May at Weldborough Pass, Tasmania. **c.-h.** C. Angelini at Cormons, Italy.

though very similar in its composition to the previous one, bears no etymological relation to *Aseroe*; according to its original description (*'chapeau…recouvert d'une humeur fétide…'* / cap…covered with a fetid liquor), there is no doubt that it actually does derive from the Greek words *aseros* (unpleasant, nauseating), hypothesised by the same author as the origin of Labillardière's *Aseroe*, plus *cybe* (head/cap).

At sectional rank, a name was not validly published:

– ***Aseroe*** sect. ***Eu-Aseroe*** Schltdl., *Inest de Aseroës genere dissertatio* 9 (1847) [as '*Eu-Aseroë*'] [*nom. inval.* ICN Art 32.1]

This section of *Aseroe* included the species having arms spreading horizontally parallel to the ground (e.g. *Aseroe rubra*), but according to ICN Art. 21.3 'the epithet in the name of a subdivision of a genus is not to be formed from the name of the genus to which it belongs by adding the prefix '*Eu-*'. Therefore, this name was not validly published (Arts. 22.2, 32.1).

And at specific or infraspecific rank (autonyms excluded):

Anthurus muellerianus f. ***aseroeformis*** E. Fisch., *Untersuchungen zur Vergleichenden Entwicklungsgeschichte und Systematic der Phalloideen*: 68 (1890) [as '*müllerianus*']

≡ *Anthurus muellerianus* var. *aseroeformis* (E. Fisch.) E. Fisch. in Engler & Prantl, *Die Natürlichen Pflanzenfamilien* I, 1(1**): 286 (1898) ['1900'] [as '*müllerianus*']; ≡ *Anthurus aseroeformis* (E. Fisch.) Lloyd, *Mycological Notes* 31 [*Mycological Writings* 2]: 408 (1908); – *Schismaturus aseroeformis* M. Locq., *Bulletin Trimestriel de la Fédération Mycologique Dauphiné-Savoie* 17(65): 18 (1977) [as '*Schizmaturus aseroiformis*'] [*nom. inval.*, ICN Art. 41.1] (Locquin 1977)

The original spelling '*müllerianus*' is transcribed as *muellerianus* as per ICN Art. 60.7. This form owes its name to its appearance, which is similar to *Aseroe*. Dring (1980) considered *Anthurus* Kalchbr. & MacOwan (Kalchbrenner & Cooke 1880) a later synonym of *Clathrus* Micheli ex Pers. (Persoon 1801), and this form of *Anthurus muellerianus* Kalchbr. to be a synonym of *Clathrus archeri* (Berk.) Dring. However, the latest phylogenetic analyses (Cooper 2020), including *Anthurus*, *Aseroe*, and *Clathrus*, show that *Aseroe rubra* and *Anthurus archeri* (Berk.) E. Fischer are sister taxa, and separate from *Clathrus*, so at the very least, the genus *Anthurus* should be used for *A. archeri*, but they are so closely related that perhaps *Anthurus archeri* belongs in *Aseroe*. Typically, *Aseroe rubra* has paired arms that are fused along their length and bifid at the tips or fused only at the base (but still seen to be paired) and arms that are not joined at the tips when young, and a disc formed at the base of the arms that, at maturity, is more or less horizontal, with the gleba forming at the base of the arms and across the disc (Figure 24). In contrast, *A. archeri* has unpaired arms that are not bifid, and which are joined at the tips when young (Cooper 2020), with the gleba not in disc-form but instead distributed along the inner face of the arms. In addition, the number of arms is usually less in *A. archeri*, and usually they are very slightly more purplish red than the purer red of *Aseroe*. However, complicating the morphological differentiation between *A. archeri* and *Aseroe rubra*, there is an 'Auckland variant' of the former that is common in New Zealand, which has bifid arms (Cooper 2020) (Figure 24). It can be distinguished from *Aseroe* by the presence of gleba along the arms and the arms being joined at the tips when young but it is frequently misidentified as *Aseroe rubra*. Therefore, each heterotypic synonym of *Aseroe rubra* and *Anthurus archeri* in the earlier literature (Dring 1980; May *et al.* 2003) now requires careful checking to accurately conclude any eventual synonymy.

MycoBank indicates that Fischer (Engler & Prantl 1898) published the name *Anthurus aseroeformis* E. Fisch. and attributes the combination *Anthurus muellerianus* var. *aseroeformis* to Saccardo (1910: 80) but both ascriptions are incorrect. In the legend of figures F–G of plate 136 on page 286, which are identical to those of his earlier work (Fischer 1890), Fischer publishes it without any doubt as a variety of *A. muellerianus* (as '*Anthurus Müllerianus* Kalchbr. Var. *aseroeformis*') which he repeats on page 288 as '*A. Müllerianus* …var. *aseroeformis*'. Furthermore, Saccardo (1910: 80) explicitly attributes the variety to Fischer by writing 'var. **aseröeformis** E. Fischer (*)', the asterisk indicating that this name has not yet been compiled and that this will be done in the subsequent volume (Saccardo 1910: IX)

Index Fungorum wrongly indicates that the year of publication of *A. muellerianus* f. *aseroeformis* was 1891 in a journal. However, it was first published in an independent preprint (Fischer 1890).

Dring (1980: 29) attributes this combination to

McAlpine 'in Lloyd … (1908)', but Lloyd (1908) only states that McAlpine has provided him with a photograph and a description of a collection but does not ascribe the name to McAlpine (ICN Art. 46, Note 1).

Schismaturus aseroeformis is not validly published in accordance with ICN Art. 41.1, as it is not accompanied by a complete and direct reference to the basionym but it is erroneously considered to be a legitimate name in MycoBank. In addition, both Corda (1854: 22) in the original publication (as *Lysurus* subg. *Schismaturus*) and Kalchbrenner (1880: 15) when raising Corda's name to the rank of a genus, used the spelling *Schismaturus*. However, both Index Fungorum and MycoBank cite the incorrect spelling *Schizmaturus*, and an incorrect sectional rank for the name created by Corda. The epithet *Schismaturus* should not be corrected to *Schizmaturus* because it does not come from *schizo* (to split, to divide) but from *schisma/schismatos* (division) and *urus/ura* (tail), a compound formed following the procedures of botanical tradition on account of the arms, which resemble tails, being divided.

Anthurus aseroeformis var. ***brevipes*** Maire, *Bulletin Trimestriel de la Société Mycologique de France* 46: 229 (1930) [as '*aseroiformis*']

Maire (1930) spelled the specific epithet as '*aseroiformis*' but the original spelling *aseroeformis* is correct. In the botanical tradition, the Greek names with nominative ending in 'e' and genitive ending in 'es', such as aloe/aloes or agave/agaves, can follow ICN Art. 60.11 using the connecting vowel 'i' when the second element is Latin to form compound epithets as for example *Yucca aloifolia* L. or *Bromelia agavifolia* Brongn., but if the connecting vowel 'o' is used because the first element is Greek, we would obtain from the previous names the epithets *aloofolia* and *agavofolia* which have been never used. In these cases, the botanical tradition has used pseudocompounds, in which 'a noun or adjective in a non-final position appears as a word with a case ending, not a modified stem', as for example with the nominative in *Callista* ***aloe****folia* Kuntze, *Aloe* ***agave****folia* Tod. or *Anthurus* ***aseroe****formis*, applying ICN Rec. 60H.1, an exception included in ICN Art. 60.11.

– ***Anthurus aseroeformis*** var. ***longipes*** Maire, *Bulletin Trimestriel de la Société Mycologique de France* 46: 229 (1930) [as '*aseroiformis*'] [*nom. inval*., ICN Art. 26.2]

Maire (1930) did not validly publish this name because he explicitly indicated that it was the type of the name of the species ('*type de l'espèce*'), which is contrary to ICN Art. 26.2, in which it is stated that 'a name of an infraspecific taxon that includes the type (i.e. the holotype or all syntypes or the previously designated type) of the adopted, legitimate name of the species to which it is assigned is not validly published unless its final epithet repeats the specific epithet unchanged'. Maire should have created only *Anthurus aseroeformis* var. *brevipes* for the taxon that did not include the type of *A. aseroeformis*. By introducing *Anthurus aseroeformis* var. *brevipes*, Maire automatically created the autonym *A. aseroeformis* (E. Fisch.) Lloyd var. *aseroeformis*, which is the correct name for what he called *A. aseroeformis* var. *longipes*. In Index Fungorum and MycoBank this is erroneously considered to be a legitimate name.

Lysurus aseroeformis Corda, *Icones Fungorum Hucusque Cognitorum* 6: 22 (1854)

≡ *Aseroe aseroeformis* (Corda) Maire, *Bulletin Trimestriel de la Société Mycologique de France* 46: 229 (1930) [as '*aseroiformis*']; – *Aseroe aseroeformis* McGinty, The Phalloids of Australasia [*Mycological Writings* 2] 18 (1907) [C. G. Lloyd writing as 'McGinty'] [*nom. inval*., ICN Art. 36.1]

We agree with Donk (1951: 205) that names attributed to 'Professor McGinty', a fictitious persona used by C.G. Lloyd, are invalidly published. Donk's explanation, that 'Lloyd's intention was to ridicule and imitate certain mycologists he labelled as 'name jugglers', 'splitters', and 'new species hunters', is reinforced by the fact that when Lloyd published new taxa that he considered correct according to his nomenclatural criteria, he used his own surname for authorship. The McGinty mock-names were never accepted by him and, therefore, are invalidly published according to ICN Art. 36.1.

The name *Aseroe* was also used as a specific epithet for a plant of the genus *Thismia* Griff.

Thismia aseroe Becc., *Malesia* 1(3): 252 (1878) [as '*Aseroe*']

Beccari (1878) did not mention the etymology of the epithet (nor did he do so for other plants he described) nor Labillardière's work, but there is good evidence that Beccari took the epithet from the genus *Aseroe*. Beccari only used a capital initial (in the text and the index of species) for those epithets dedicated either to people (e.g. '*Thismia Brunonis* Becc.'), to divine beings ('*Thismia*

Neptunis Becc.'), to geographical areas ('*Gymnosiphon Papuanum* Becc.'), or taken from names of previous genera ('*Asplenium Laserpitifolium* Lam.'). Therefore '*Thismia Aseroe* Becc.' could only be derived from *Aseroe* Labill. Furthermore, the plant figured by Beccari has a great resemblance to *Aseroe* with a flat, radial, star-shaped corolla and radial filiform appendages. According to Chiara Nepi at Firenze herbarium (pers. comm.), before his first expedition in Borneo in 1865, Beccari visited the collections and libraries of London (Kew Gardens and British Museum Natural History) to prepare himself. This means he had a good opportunity to consult Labillardière's *Relation du Voyage* to learn about the plants that he was going to collect in Malaysia. Furthermore, due to the legacy of Philip Barker Webb (1793–1854), a copy of *Relation du Voyage* arrived in Florence together with the rest of Webb's library and herbarium before Beccari's expedition to Borneo (C. Nepi, pers. comm.). In fact, Beccari explicitly mentions the importance of the Webb legacy for the Florence library and that this herbarium (which contained Labillardière's collections) was the primary collection to which he compared his own specimens (Beccari 1878: 135–136).

Aseroe, how many names?

After the publication of *Aseroe rubra* by Labillardière (1800a) other authors added more taxa to the genus *Aseroe*. We present below, in chronological order of the original publication of a name (or its basionym or replaced synonym if it has one), all the names of new taxa published in the genus *Aseroe* (autonyms excluded). By reviewing the nomenclature and references to protologues, we offer to specialists an updated list of all names that have been published in the genus *Aseroe*, and their homotypic synonyms. The result is a compilation of 28 legitimate names, four illegitimate names and six names that were not validly published. Among the 28 legitimate names, 20 have a different type. With this list, specialists can know the priority of the names, the correct and complete reference to the protologues, and their nomenclatural status (whether they are legitimate, illegitimate, or invalid). This will contribute to nomenclatural stability since sometimes the data from official repositories (Index Fungorum and MycoBank) are wrong. Many of the published names have been synonymised with *Aseroe rubra*, but currently there is no taxonomic work based on phylogenetic analyses to help us confirm the previously proposed synonymies (Dring 1980, May *et al*. 2003). Thus, the listing below will also be of assistance to taxonomists who study this genus and other related genera especially in locating appropriate original material (types, authentic specimens, illustrations) with which to satisfactorily interpret each name and to apply the correct name in each case depending on the results of their taxonomic studies.

NOTE 1: for several names introduced by Fischer (1890) in *Untersuchungen zur Vergleichenden Entwicklungsgeschichte und Systematik der Phalloideen* the databases Index Fungorum and MycoBank and many bibliographic references (e.g. Dring 1980, May *et al*. 2003, Trierveiler-Pereira *et al*. 2014) cite the original place of publication as *Neue Denkschriften der Allgemeinen Schweizerischen Gesellschaft für die Gesamten Naturwissenschaften* 32: 1–103. '1890' but this was a reprint published in this journal in 1891 from the original independent work published in 1890.

NOTE 2: Index Fungorum and MycoBank incorrectly treat a number of varieties established under *Aseroe rubra* as forms, as in '*A. rubra* f. *actinobola* (Corda) Sacc.', '*A. rubra* f. *pentectina* [sic] (Endl.) Sacc.' [Index Fungorum only], '*A. rubra* f. *muelleriana* (E. Fisch.) Sacc.' [Index Fungorum only] and '*A. rubra* f. *typica* Sacc.'. However, these names were treated by Saccardo (1888: 26) as varieties, as is clearly stated at the end of the entry dealing with *A. rubra*. In addition, MycoBank lists the name *A. rubra* var. *muelleriana* as '*Aseroe rubra* δ *muelleriana*' with no indication of its varietal rank.

NOTE 3: Index Fungorum and MycoBank incorrectly treat at varietal rank a number of forms established by Fischer (1890), as in '*Aseroe rubra* var. *zeylanica* (Berk.) E. Fisch.' and '*A. rubra* var. *junghuhnii* (Schltdl.) E. Fisch.'. However, Fischer (1890) designated in this work all infraspecific names under *Aseroe rubra* (identified by Greek letters) as '*Formen*'. The use of the term 'Form' by Fischer was not casual but an indication of taxonomic rank, because on page 45 he explicitly used the standard notation 'f.' (e.g. '*Aseroe rubra* f. *ceylanica*').

NOTE 4: For the names introduced by Fischer (1886) that have infraspecific epithets preceded by Greek letters, these are at the rank of variety because the author explicitly identified them as '*Varietäten*' on page 87.

Aseroe rubra Labill., *Relation du Voyage à la Recherche de La Pérouse*. Atlas: pl. 12, figs. 1–3 (1800)

Aseroe pentactina Endl., *Iconographia Generum Plantarum*: pl. 1 (1837) [as '*Ascröe*']; ≡ ***Aseroe rubra*** var. ***pentactina*** (Endl.) E. Fisch., *Jahrbuch des Königlichen Botanischen Gartens und des Botanischen Museums zu Berlin* 4: 87 (1886) [as 'β *pentactina*']; ≡ ***Aseroe rubra*** f. ***pentactina*** (Endl.) E. Fisch., *Untersuchungen zur Vergleichenden Entwicklungsgeschichte und Systematik der Phalloideen*: 73 (1890) [as '*b. pentactina*']

In *Genera Plantarum*, Endlicher (1836–1840) refers to the genus *Aseroe* without mentioning any species and includes a reference to 'Endl. *Atakt.* t. 50'. In *Iconographia Generum Plantarum*, which is an accompanying volume to *Genera Plantarum* (but a separate work), Endlicher (1837–1841) includes an illustration of *Aseroe pentactina*, with no description, also citing 'Endl. *Atakt.* t. 50'. However, the *Atakta Botanica* (Endlicher 1833–1835) has plate numbers only as high as 40 (and with some intervening plates missing) and does not contain an entry for *Aseroe*. Despite the lack of a description in Endlicher (1837–1841), or any earlier published description, *Aseroe pentactina* is validly published there via the provision of an 'illustration with analysis' (ICN Art. 38.8 and 38.11).

Bail (1858) reproduced the illustration of *A. pentactina* from Endlicher (1837–1841) using the name '*Ascroe pentactina* Labillard.', noting it was from 'Indien'. This is merely an erroneous citation of the name and type location of *A. pentactina* Endl.

[NOTE: In the entry for *Aseroe rubra* f. *pentectina* [sic] (Endl.) Sacc. [see comments above], Index Fungorum uses the incorrect spelling '*pent**e**ctina*' even though Saccardo (1888: 26) correctly spelled the epithet '*pentactina*'.]

Calathiscus sepia Mont., *Annales des Sciences Naturelles Botanique, série* 2,16: 278 (1841). See below under ***Aseroe calathiscus*** Schltdl., *Inest de Aseroës Genere Dissertatio*: 13 (1847)

Aseroe viridis Berk. & Hook. f. in Berkeley, *The London Journal of Botany* 3: 192 (1844); ≡ ***Aseroe hookeri*** Berk. in Hooker, The Botany of the Antarctic Voyage 2. Florae Novae-Zelandiae 2. Flowerless Plants: 187 (1855) [nom. illeg., ICN Art 52.1.]; ≡ ***Aseroe hookeri*** var. ***viridis*** (Berk & Hook. f.) Berk. in Hooker, *The Botany of the Antarctic Voyage* 2. *Florae Novae-Zelandiae* 2. *Flowerless Plants*: 187 (1855) [as '*β viridis*']

Berkeley (1855) explicitly stated that he changed the name from *Aseroe viridis* to *A. hookeri* because he collected additional 'deep red' specimens that he assigned to the same species. Consequently, when describing *A. hookeri* he distinguished two varieties, *A. hookeri* var. *miniata* for the red specimens and *A. hookeri* var. *viridis* for the green specimens, together encompassing the entire circumscription of the species. However, Berkeley pointed out that *A. hookeri* var. *viridis* 'was fully described and figured in *Hook. Lond. Journ.* Vol. iii p. 192'. So, it was not the name of a new taxon, but a combination created for the pre-existing name *A. viridis* (Berkeley 1844). Because *Aseroe hookeri* included the type of *A. viridis*, a name having priority over *A. hookeri*, *A. viridis* should have been adopted at the species rank, and the varieties created should have been '*A. viridis* var. *miniata*' and '*A. viridis* var. *viridis*'. Therefore, *A. hookeri* was a superfluous name when it was published and therefore an illegitimate name according to ICN Art. 52.1.

Berkeley (1885) consistently used Greek letters for the rank of variety because in this work many epithets were preceded by '*Var.*' followed by the Greek letter. In accordance with ICN Art. 52.4, *Aseroe hookeri* var. *viridis* is a legitimate name even if it was published as a variety of the illegitimate name *Aseroe hookeri* because it has the basionym *Aseroe viridis*. See also ICN Art. 55.2.

[NOTE: Index Fungorum and MycoBank erroneously consider *A. hookeri* to be a legitimate name. Both databases also list the autonyms *A. hookeri* f. *hookeri* and *A. hookeri* var. *hookeri*, but neither of these exist in accordance with ICN Art. 27.2 (see also its Ex. 1), 'the final epithet in the name of an infraspecific taxon may not repeat unchanged the epithet of the species name if that species name is illegitimate'. Index Fungorum also lists *Aseroe hookeri* f. *viridis* (Berk. & Hook. f.) Sacc., but Saccardo did not mention the form rank, instead citing Berkeley's varietal combination with Greek letters].

Aseroe zeylanica Berk., *London Journal of Botany* 5: 535 (1846); ≡ ***Aseroe rubra*** f. ***zeylanica*** (Berk.) E. Fisch., *Untersuchungen zur Vergleichenden Entwicklungsgeschichte und Systematik der Phalloideen*: 75 (1890) [as '*ceylanica*']

The original epithet '*zeylanica*' is correct and therefore not to be modified to '*ceylanica*' as done by Fischer (1890).

Aseroe junghuhnii Schltdl., *Inest de Aseroës Genere Dissertatio* 11 (1847) [as '*Iunghuhnii*']; ≡ ***Aseroe rubra*** f. ***junghuhnii*** (Schltdl.) E. Fisch., *Untersuchungen zur Vergleichenden Entwicklungsgeschichte und Systematik der Phalloideen*: 74 (1890), [as '*A. rubra* d. *Junghuhnii*']; ≡ ***Aseroe rubra*** var. ***junghuhnii*** (Schltdl.) C. Bernard, *Annales du Jardin Botanique de Buitenzorg* 22: 224 (1908) (Bernard 1908)

The epithet of this species was dedicated to Friedrich Franz Wilhem Junghuhn (1809–1864) and therefore it must be corrected to '*junghuhnii*'. In accordance with ICN Art. 60.6 'when names or epithets of Latin but not Greek origin include the letter *i* used as a semivowel (followed by another vowel), it is treated as an error correctable to *j*'.

Aseroe calathiscus Schltdl., *Inest de Aseroës Genere Dissertatio*: 13 (1847) [*nom. novum* replacing *Calathiscus sepia*; *nom. illeg.* ICN Art. 52.1]; ≡ ***Calathiscus sepia*** Mont., *Annales des Sciences Naturelles Botanique, série* 2,16: 278 (1841)

Aseroe calathiscus is an illegitimate name because Schlechtendal (1847) explicitly cited *Calathiscus sepia* Mont. as a synonym, a name (Montagne 1841) with priority over *A. calathiscus*. Therefore, the name '*A. sepia*' ought to have been adopted by Schlechtendal according to ICN Art. 52.1.

[Index Fungorum and MycoBank consider *Aseroe calathiscus* a legitimate name.]

Aseroe multiradiata Zoll., *Systematisches Verzeichniss der im Indischen Archipel in den Jahren 1842–1848 Gesammelten Sowie der aus Japan Empfangenen Pflanzen* 1: 11, 17 (June 1854)

Zollinger (1854) published the species name on page 11, but the validating Latin description was published on page 17.

Aseroe actinobola Corda, *Icones Fungorum Hucusque Cognitorum* 6: 23 (October 1854); ≡ ***Aseroe rubra*** var. ***actinobola*** (Corda) E. Fisch., *Jahrbuch des Königlichen Botanischen Gartens und des Botanischen Museums zu Berlin* 4: 88 (1886) [as 'γ *actinobola*']; ≡ ***Aseroe rubra*** f. ***actinobola*** (Corda) E. Fisch., *Untersuchungen zur Vergleichenden Entwicklungsgeschichte und Systematik der Phalloideen*: 73 (1890) [as '*c. actinobola*']

Aseroe aseroeformis (Corda) Maire, *Bulletin Trimestriel de la Société Mycologique de France* 46: 229 (1930) [as '*aseroiformis*']; ≡ ***Lysurus aseroeformis*** Corda, *Icones Fungorum Hucusque Cognitorum* 6: 22 (1854); ≡ ***Aseroe lysuroides*** E. Fisch., *Jahrbuch des Königlichen Botanischen Gartens und des Botanischen Museums zu Berlin* 4: 89 (1886) [*nom. novum* replacing *Lysurus aseroeformis* Corda] [*nom. illeg.* ICN Art. 52.1]; – ***Aseroe aseroeformis*** McGinty, The Phalloids of Australasia [*Mycological Writings* 2]: 18 (1907) [C. G. Lloyd writing as 'McGinty'] [*nom. inval.*, ICN Art. 36.1.]

Aseroe lysuroides is an illegitimate name because, according to ICN Art. 52.1, when *Lysurus aseroeformis* was combined in *Aseroe*, the epithet '*aseroeformis*' ought to have been adopted, as done by Maire (1930). As explained above, we agree with Donk (1951: 205) that names attributed to 'Professor McGinty', a fictitious persona used by Lloyd, are not validly published.

Aseroe hookeri var. ***miniata*** Berk. in Hooker, *The Botany of the Antarctic Voyage* 2. *Florae Novae-Zelandiae* 2. *Flowerless Plants*: 187 (1855)

[NOTE: Index Fungorum and MycoBank list the name *A. hookeri* f. *miniata* Sacc., but Saccardo (1888: 26) did not mention the rank 'form', instead citing Berkeley's varieties *viridis* (see above) and *miniata* with Greek letters (as 'α *miniata*') in the same way that he cited the varieties of *A. rubra* with Greek letters on the same page. In addition, Index Fungorum also references *A. hookeri* var. *minuta* Berk. which is a slip of the pen for *A. hookeri* var. *miniata*.]

Aseroe kalchbrenneri F. Muell., *Fragmenta Phytographiae Australiae*, Vol. 11, Fasc. 91: 89 (1880) [as '*Aseroe* (*Lysurus*) *Kalchbrenneri*'] [*nom. inval.* ICN Art. 36.1.(b), see Ex. 8]

When describing *Anthurus muelleri* Kalchbr., Mueller (1880) ascribed the name to Kalchbrenner and listed as a synonym '*Aseroe* (*Lysurus*) *Kalchbrenneri*, F.M. Coll.'. The name *Aseroe kalchbrenneri* is not validly published under ICN Art. 36.1(b) because it was published as a synonym.

[NOTE: *Anthurus muelleri* Kalchbr. (February 1880) is a name not listed in Index Fungorum or Mycobank and with priority over *A. muellerianus* Kalchbr. (September 1880) if both are considered synonyms.

Aseroe corrugata Colenso, *Transactions and proceedings of the New Zealand Institute* 16: 362 (1883)

Aseroe rubra var. ***muelleriana*** E. Fisch., *Jahrbuch des Königlichen Botanischen Gartens und des Botanischen Museums zu Berlin* 4: 88 (1886) [as 'δ *Mülleriana*']; ≡ ***Aseroe muelleriana*** (E. Fisch.) Lloyd, The Phalloids of Australasia [*Mycological Writings* 2]: 18 (1907)

The original spelling '*mülleriana*' is corrected to *muelleriana* in accordance with ICN Art. 60.7.

Aseroe rubra var. ***typica*** Sacc., *Sylloge Fungorum* 7: 26 (1888) [as 'α *typica*'] [*nom. inval.*, ICN Art. 24.3.]

According to ICN Art. 24.3 'infraspecific names with final epithets such as…*typicus*…when purporting to indicate the taxon containing the type of the name of the next higher-ranked taxon, are not validly published…'

[NOTE: Index Fungorum, MycoBank and some authors (e.g. May *et al*. 2003) indicate that Fischer (1886: 87) published the name *A. rubra* var. *typica* (as *A. rubra* α *typica*) but he actually published '*A. rubra* var. α *rubra typica*'. In this context, '*typica*' does not replace the varietal epithet, which is '*rubra*', and it must be understood as an emphasis to indicate that it represents the taxon described by Labillardière.]

Aseroe arachnoidea E. Fisch., *Untersuchungen zur Vergleichenden Entwicklungsgeschichte und Systematik der Phalloideen*: 76 (1890); ≡ ***Lysurus arachnoideus*** (E. Fisch.) Trierv.-Per. & K. Hosaka, *Mycologia* 106(5): 909 (2014)

In publishing the new combination in *Lysurus* Trierveiler-Pereira *et al*. (2014) provide a wrong title for the work in which the basionym was published (see above), but according to ICN Art. 41.6. this error in citation does not preclude valid publication.

Aseroe rubra f. ***typica*** E. Fisch., *Untersuchungen zur Vergleichenden Entwicklungsgeschichte und Systematik der Phalloideen*: 72 (1890) [as '*a. typica*'] [*nom. inval.*, ICN Art. 24.3.]

Aseroe polyactina E. Fisch., *Neue Denkschriften der Allgemeinen Schweizerischen Gesellschaft für die Gesammten Naturwissenschaften* 33: 29 (1893) [*nom. inval.*, ICN Art. 36.1.(b), see Ex. 8]

A name on a herbarium label from a specimen at K, introduced in synonymy under *A. pentactina* as 'Herb Kew! sub. nom. *Aseroë polyactina*'.

Aseroe rubra var. ***bogoriensis*** Pat., *Bulletin de la Société Mycologique de France* 14(4): 191 (1898) [as '*Bogoriensis*']

Aseroe pallida Lloyd, *Synopsis of the Known Phalloids* [*Mycological Writings* 3]: 47 (1909).

Under the name *Aseroe pallida*, Lloyd (1909: 47) wrote 'I think it is worthy of record as a marked form of this variable species'. This sentence could incline us to think that it was published as a form within *A. rubra* but in the index on page 96, *A. pallida* is unambiguously identified as an independent species.

Aseroe poculiforma F. M. Bailey, *The Queensland Agricultural Journal* 25: 165 (1910)

[NOTE: Index fungorum, MycoBank and some authors (Sydow 1912; Dring 1980) have 'corrected' the epithet to *poculiformis*, while others (Fedde 1913; Cunningham 1931a; May *et al*. 2003) have used the original spelling *poculiforma*. According to ICN Art. 60. 'The original spelling of a name or epithet is to be retained, except for the correction of typographical or orthographical errors' and some specific standardisations. The epithet *poculiforma* is neither a typographical nor an orthographical error and none of the standardisations listed in ICN Art. 60.1 imposes that the ending *-forma* must be changed to *-formis*. It is not a typographical error because Bailey (1910: 165; 1911: 250; 1913: 746, 750) consistently used the spelling *poculiforma* in all his works, nor an orthographical one because this compound is formed from two nouns in nominative case of Latin origin, *poculus* (glass) and *forma* (form) according to ICN Art. 60.11 (*pocul-i-forma*). The epithet *poculiforma* means 'having a shape like that of a glass' in a perfect analogy with the Ex. 42 of this Article in which *quercifolia* is a compound formed from two nouns also in the nominative case, *Quercus* and *folia*, meaning 'having leaves like those of *Quercus*'. Although compounds with the elements *-formis* (for masculine and feminine epithets) and *-forme* (for neuter epithets) are much more often used in names meaning 'with the shape of', this does not mean that the element *-forma* is erroneous. As stated in ICN Art. 51.1 'a legitimate name must not be rejected merely because … another [epithet] is preferable or better known…'. The element *-forma* has been used in quite a few fungal compound epithets such as *flabelliforma, flagelliforma, floriforma, fusiforma, infundibuliforma, inocybiforma, limoniforma, moniliforma, oviforma, pistilliforma* and *versiforma*, beginning with Persoon's (1822: 183) *Clavaria pistilliforma*.]

Aseroe arachnoidea var. ***americana*** E. Fisch., *Vierteljahrsschrift der Naturforschenden Gesellschaft in Zürich* 73(15): 17 (1928) [*nom. illeg.*, ICN Art. 52.1]

Aseroe arachnoidea var. *americana* is an illegitimate name because Fischer (1928) explicitly cited *A. rubra* var. *bogoriensis* Pat. as a synonym, a name (Patouillard 1898) with priority over *A. arachnoidea* var. *americana*. Therefore, the varietal epithet *bogoriensis* ought to have been adopted by Fischer according to ICN Art. 52.1.

[Index Fungorum and MycoBank consider *Aseroe arachnoidea* var. *americana* to be a legitimate name.]

Aseroe rubra var. ***brasiliensis*** Ulbr., *Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem* 10: 722 (1929) (Ulbrich 1929)

Aseroe genovefae Decary, *Bulletin de l'Académie Malgache*, *nouvelle série*, 25: 75 (1946) ['1942–1943'] (Decary 1946)

Aseroe floriformis Baseia & Calonge, *Mycotaxon* 92: 170 (2005) (Baseia & Calonge 2005); ≡ ***Abrachium floriforme*** (Baseia & Calonge) Baseia & T.S. Cabral, in Cabral, Marinho, Goto & Baseia, *Mycotaxon* 119: 424 (2012) (Cabral, Marinho, Goto & Baseia 2012)

Aseroe coccinea Imazeki & Yoshimi ex Kasuya, *Mycoscience* 48(5): 310 (2007) (Kasuya 2007); – ***Aseroe coccinea*** Yoshimi & Hongo, in Imazeki & Hongo, *Colored Illustrations of Mushrooms of Japan* 2: 218 (1989) [*nom. inval.*, ICN Art. 36.1(a)]

Yoshimi & Hongo (1989) proposed the name *A. coccinea* '*ad interim*', that is, as a provisional name (*nom. inval.* ICN Art. 36.1(a)).

Looking for the type specimen and typification

According to all the literature consulted, no author has typified the name *Aseroe rubra*. To proceed with its typification, it is necessary first to know whether herbarium material and/or original drawings, on which Labillardière based the description and illustration in the protologue, are preserved. As has already been expounded in the previous sections of this paper, the collections that Labillardière made on the southeast coast of Australia and Tasmania suffered various vicissitudes before Banks returned them to him, sending them to Paris. Once Labillardière recovered his collections, he sent duplicates to numerous botanists. For example, he informed Banks on *14 ventose an 8* (5 March 1800) that he would send duplicates – these are currently in the Natural History Museum in London (Kantvilas 2007). Another example is the almost complete set of duplicates in the Desfontaines herbarium at the *Muséum National d'Histoire Naturelle* in Paris (Steinberg 1977). Shortly after Labillardière's death, in 1834, Philip Barker Webb purchased his herbarium, which contained original material of almost all the species described from Australia and New Caledonia. Four years before his death in 1854, Webb willed his herbarium, library, and home in Paris to Grand Duke Leopold II of Tuscany, who in turn bequeathed them to the *Erbario Centrale Italiano* (Steinberg 1977), today the Herbarium Universitatis Florentinae (FI) of the University of Florence (Italy). This remains the main institution at which Labillardière's collections are deposited.

Labillardière's exchange of herbarium material with other botanists was intensive, judging by the collections that made up his herbarium, because many came from places to which Labillardière had never travelled (Steinberg 1977).

As Kantvilas (2007) indicates, 'Labillardière's plant collections are scattered across a wide range of herbaria'. Stafleu (1966) mentions that specimens from Labillardière's herbarium can be found in the herbaria: B, BM, BR, C, CGE, CW, FI, FH, FR, G, G-DC, K, L, P, P-Ju, P-La, UPS and W. The designation P now refers to the collection of phanerogams in the Herbarium of the *Muséum national d'Histoire Naturelle* in Paris, while PC is used to designate the fungi collections at that institution. FR does not hold fungi collections. Non-lichenised fungi from BM were transferred to K. As for the CW (Imperial Khar'kov [Kharkiv] University) herbarium, Stafleu mentions it because Turczaninow deposited his collections in this herbarium in 1840, later renamed CWU (V.N. Karazin National University of Kharkiv) where it remained until 1940, when it was transferred to KW (National Herbarium of Ukraine, M.G. Kholodny Institute of Botany) according to Mosyakin *et al.* (2019). Among Turczaninow's collections were a few specimens of New Caledonian plants collected by Labillardière (Steenis 1950). In addition to the herbaria listed by Stafleu (1966), Apfelbaum (1977) lists GH, LINN, MEL, MO, NY and PH, although the MO herbarium is only of bryophytes and vascular plants. GH was integrated into FH. Steenis (1950: 57) also mentions the G-DEL herbarium, and Wege (2017: 232) the MPU herbarium. Thus, the original material of *Aseroe rubra* could be found in any of the following 21 herbaria: B, BR, C, CGE, FI, FH, G, G-DC, G-DEL, K, L, LINN, MEL, MPU, NY, PC, P-Ju, P-La, PH, UPS and W.

All available herbarium databases have been reviewed and no original specimen of *Aseroe rubra* was found in any of them. Only in the herbarium database of the New York Botanical Garden (NY) did we find a specimen of *Aseroe rubra* registered as 'collector J.J.H. from Labillardière s.n.'. Laura Briscoe kindly informed us that it was a specimen from Georges Massee's herbarium and sent us photos of the sheet on which the specimen is attached, which contains a handwritten '*New Britain*'. The handwriting is by Massee, and New Britain is in Papua New Guinea, so it was not original material of *Aseroe rubra*. As a result of our enquiry, the collection locality has been added and the collector has been corrected to 'unknown'.

We contacted all 21 herbaria mentioned above to rule out the existence of any original specimen of *Aseroe rubra* not registered in their databases. All the herbaria replied that they held no original specimens of *Aseroe rubra*.

This lack of original material in all the herbaria where specimens collected by Labillardière are kept – and especially in the herbarium of the University of Florence (FI) where the Webb herbarium containing Labillardière's collections was deposited (Chiara Nepi, pers. comm.) – leads to the conclusion that Labillardière either left the material on which he based his description of *Aseroe rubra* at the collection site, or the material was lost in the numerous vicissitudes that Labillardière's collections suffered on their return trip to Europe.

In his publications Labillardière mostly described plant species. In general, these could be easily dried and preserved relatively flat due to their more fibrous structure and their lower moisture content. Labillardière did collect and describe some lichenised fungi (Galloway 1988 mentions 19 sheets in FI-W) but these are easier to dry and preserve than fleshy macrofungi. In fact, *Aseroe rubra* is the only non-lichenised fungus that he described in all of his works, although he most certainly encountered many fungi in his travels – this is most likely due to its peculiar appearance, very different from other European mushrooms. *Aseroe rubra* has a fleshy consistency, with a high percentage of water, and the arms are fragile and fracture easily, which, along with the voluminous shape, makes it difficult to preserve flat and dried on a herbarium sheet. Another option would have been to preserve it in a sealed container in some type of conserving liquid.

The gleba of *A. rubra* has an intense, nauseating odour which is quite evident when preparing fungarium specimens and would be sufficient to put one off retaining a specimen, especially one that would be kept in the confines of a ship's cabin. However, the remarkable odour was not mentioned, neither in the original description in French nor in the Latin description in Labillardière's subsequent work (Labillardière 1804–1807), even though from his narrative it seems that Labillardière encountered the fungus in the field. The gleba sits on the inner surface of the arms, towards the base, and is not evident in the plate. In older specimens, the gleba can sometimes be removed almost entirely by flies or rain and perhaps the specimen encountered lacked the gleba. Whatever the reason for collecting or not, there is no evidence of a collection having been made.

Another source of original material would be the original drawing from which the published plate in the *Atlas* was prepared, especially if there were additional details visible in comparison to the published version. The plate of *A. rubra* is attributed to Piron ('*Piron delineavit*'), as are several other plates in the *Atlas*. Stafleu (1966), commenting on drawings of plants by Piron as reproduced in Labillardière (1804–1807), indicates, 'the drawings by Piron were probably mostly made on the spot'. Such an approach was likely also taken with the drawing of *Aseroe rubra*, given the difficulty of preservation. At least some of the original drawings by Piron are held at the *Archives nationales de la Marine* in Vincennes, and at the *Musée du Quai Branly* in Paris (Explore Collections 2015+), but among these or other archival material related to the expedition, we have not located any original drawing of *A. rubra*.

Turning to archival sources, we have not found any mention, in literature or in the letters of Banks or Labillardière, of the existence of a specimen of *Aseroe rubra*, dried or in spirit, among the material collected by the expedition. In the report that Banks sent to William Price (Queen Charlotte's Vice-Chamberlain) on 31 March

1796 (Trove 2009+d), regarding his inspection and checklist of Labillardière's collections, at the London residence of the Duc d'Harcourt, he elaborates 'a vast Herbarium collected in all the places the ships touched, a large collection of dried Birds, a considerable number of dried Lizards & Snakes, some Fish in spirits, & some insects said to be much damaged which are not at Harcourt House […] I counted near 350 quires of paper containing specimens & there are 3 or 4 large boxes besides in which the dried Plants are packed together so close that they probably contain as many specimens as the quires of papers', but does not mention fungi. Furthermore, when Banks wrote to Jussieu on 10 August 1796 (Trove 2009+c) to inform him that the collections would be sent back to France, he explicitly let him know that 'all will be returned to him [Labillardière]' and that Banks would retain absolutely nothing. Likewise, in the list of the collections obtained in the expedition that Labillardière sent to André Thouin in a letter dated *13 germinal an IV* (April 2 1796), he indicates that it was made up of boxes and glass containers containing dried plants, flowers, seeds, wood samples, 11 breadfruit trees, shells, insects, birds, fish, reptiles, and a small kangaroo; but, again, fungi are not mentioned (Bonnet 1892; Letouzey 1989). Finally, when the collections arrived at the *Jardin des Plantes* in Paris, Jussieu kept the cases unopened until Labillardière returned from his trip to Italy, and there is no evidence that collections were lost. In fact, in Labillardière's letter to Banks of 19 frimaire an V (9 December 1796) in which he expresses thanks for the return of the collections, he indicates that the insects have been almost entirely destroyed and that almost all the boxes were broken, but he did not mention that any specimens were missing.

Accordingly, it is highly unlikely that an original specimen or drawing of *Aseroe rubra* exists. The lectotypification of this name is therefore effected here by selecting an element from the only original material available, which is the illustration of *A. rubra* in the Atlas of the work (Figure 21).

Aseroe rubra Labill., *Relation du Voyage à la Recherche de La Pérouse*, Atlas: pl. 12, figs. 1–3. 5 March 1800. **Lectotypus (hic designatus): [icon] *Aseroe rubra* in J.-J. Labillardière, Relation du Voyage à la Recherche de La Pérouse, Atlas: Table 12, Figure 1. 1800. Typification identifier: MycoBank MBT 10015570.**

Conclusions

Having established precise personal data for Labillardière, our close analysis of his methods and publications reveal his fortunate career to have been incrementally teleological; each step in his formative arc has proven instrumental to his subsequent employ, making for the career of a purpose-driven innovator of botanical research and nomenclature. This detailed establishment of his persona and methodology provides a sound foundation for the future study of his manifold contributions to science.

Via a detailed reconstruction of its complex publication history, the three volumes of Labillardière's *Voyage à la Recherche de La Pérouse* are shown to have been published at the same time, and the names *Aseroe* and *Aseroe rubra* to have been validly published in that work.

Our in-depth historical philology demonstrates all previous explanations of the etymology of the genus name *Aseroe* to have been incorrect, and further shows Labillardière's procedure to coin botanical names, in this and other cases, to be peculiar and unique in the history of botany.

The number of taxa in the genus *Aseroe* is currently unknown. Only after a deep phylogenetic study, possibly requiring genome-wide markers, will it be possible to establish unequivocally the number of species in the genus and their occurrences as native or exotic, especially given the great variability in morphology across the various collections. Our enumeration of the names introduced in the genus provides a framework for assigning names should segregate species be recognised, especially for the identification of relevant type material.

Supplementary materials

A supplementary PDF of two hyperlinked tables is available alongside this article on the *Muelleria* webpage (www.rbg.vic.gov.au/science/journal). The PDF can also be directly accessed via https://perma.cc/BS37-VHM5.

These tables comprise a list of the editions and translations of *Relation du Voyage à la Recherche de La Pérouse* (Table 1) and details of online versions and library/market copies of the various editions and translations of *Relation du Voyage à la Recherche de La Pérouse* (Table 2).

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A remarkable species of *Vigneronia* (Roccellaceae *s. lat.*) from the remote southern coast of Tasmania

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Abstract

Vigneronia meridionalis Kantvilas & P.M.McCarthy is described from littoral, siliceous rocks on the South Coast of Tasmania. It is characterised by its robust, solitary or clustered, carbonised lirellae, sparingly branched and anastomosed paraphysoids, *grumulosa*-type asci, 3-septate, non-halonate ascospores, filiform-arcuate conidia, the absence of secondary lichen metabolites, and its saxicolous habit.

Key words: Australia, Lecanographaceae, lichens, lirellae, new species

Introduction

The lichen family Roccellaceae *s.lat.* (including Lecanographaceae as defined by Frisch *et al.* 2014) is well represented in Tasmania, with several genera having been the focus of recent taxonomic study; for example, *Angiactis* (Kantvilas *et al.* 2020a), *Cresponea* (Kantvilas 2020a), *Enterographa* (Kantvilas 2022a), *Lecanactis* (Kantvilas 2022b), *Lecanographa* (Kantvilas 2004), *Mazosia* (Kantvilas 2020b) and *Ocellomma* (Kantvilas *et al.* 2020b). As elsewhere in the world, most of its Tasmanian representatives are comparatively rare taxa or those with distinctive ecologies and distributions. Many species are restricted to climax vegetation types such as rainforest (e.g. *Cresponea subpremnea* (Kantvilas & Vězda) Kantvilas, *Lecanactis abietina* (Ach.) Körb., *L. mollis* (Stirt.) Frisch & Ertz and *Mazosia corticola* Kantvilas) or coastal swampy woodlands (e.g. *Enterographa micrographa* (Nyl.) Redinger), to old individuals of specific tree and shrub species (e.g. *Lecanactis latispora* Egea & Torrente, *Lecanographa nothofagi* Kantvilas, *Ocellomma rediuntum* (Stizenb. ex Hasse) Kantvilas *et al.*), or to highly sheltered niches in vegetation otherwise subject to periodic

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disturbance, especially from fire (e.g. *Chiodecton montanum* Thor, *Cresponea graemeannae* Kantvilas, *Lecanactis scopulicola* Kantvilas).

Many of the traditional genera of the Roccellaceae have been the focus of intensive research, leading to their subdivision into more natural units. Much of the earlier work was based principally on cladistic analyses of morphological and anatomical characters (e.g. Tehler 1990, 1992, 1993). However, the current classification of the Roccellaceae and allied groups rests heavily on molecular analyses, in particular on the work of Ertz & Tehler (2011), Frisch *et al.* (2014) and Ertz *et al.* (2014), with the last in particular describing (or reinstating) as distinct genera several groups from such classical units as *Lecanactis*, *Opegrapha* and *Schismatomma*. Even so, placing individual species into these genera is usually challenging due to the dearth of consistent anatomical, morphological or chemical markers for most of these segregates.

The focus of this paper is a remarkable saxicolous species collected from the remote coast of southern Tasmania. The material is 35 years old and unsuitable for DNA analysis. Consequently, our investigation has relied entirely on a comparative evaluation of morphological, anatomical and chemical data. In order to bring this species to the attention of other lichenologists and local land managers, we tentatively place it in *Vigneronia*, a genus of five species already known from widely scattered locations that include the Galapagos Islands, the Caribbean, Mexico, Chile and Brazil (Ertz *et al.* 2014; Herrera-Campos *et al.* 2019).

Material and methods

The study is based on a collection by GK that is housed in the Tasmanian Herbarium (HO), and comparisons with published descriptions and reference exsiccata from other regions. Anatomical observations and measurements are based on thin, hand-cut sections of the thallus, apothecia and pycnidia, mounted in water, 10% KOH (K), Lugols Iodine (I), ammoniacal erythrosin and/or Lactophenol Cotton Blue. Application of Lugols Iodine after pretreatment with KOH is abbreviated as KI. The presence of calcium oxalate was established by eluting thin microscope sections with 20% H_2SO_4, which causes a precipitate of needle-like crystals. Ascospore measurements are presented in the format 5th percentile–*average*–95th percentile, with outlying values in brackets and *n* signifying the number of observations. Chemical composition of the new taxon was investigated by thin-layer chromatography using standard methods and solvent A (Orange *et al.* 2010).

For the DNA work, several lirellae were transferred to a Lysing Matrix A tube (MP Biomedicals, Seven Hills, NSW, Australia). The material was ground on a Precellys Evolution (Bertin Instruments, Montigny-le-Bretonneux, France). DNA was then extracted using a phenol-chloroform DNA extraction protocol modified from Zolan & Pukkila (1986), as described in Gueidan *et al.* (2007). Amplifications were attempted on two nuclear ribosomal gene regions: ITS and LSU. For each amplification, raw extract, 1/10 dilution and a 1/100 dilution were used. For ITS, fragments of various sizes were amplified using the primer pairs ITS1F-ITS4, ITS1F-ITS2 and ITS3-ITS4 (Gardes & Bruns 1993; White e*t al.* 1990). For LSU, fragments of various sizes were amplified using the primer pairs LR0R-LR7, LR0R-LR5 and LR0R-LR3 (Vilgalys & Hester 1990). None of the amplifications generated a PCR product visible on gel electrophoresis.

Taxonomy

Vigneronia meridionalis **Kantvilas & P.M.McCarthy, *sp. nov.***

MycoBank no. MB860032

Characterised by its saxicolous habit, a thallus lacking secondary lichen metabolites, the carbonised, robust lirellae to 1 mm long and to 0.5 mm wide, occurring singly or in elevated clusters, the sparingly branched and anastomosed paraphysoids, the *grumulosa*-type asci, 3-septate, non-halonate ascospores, 17–28 × 3–5 µm, and the filiform-arcuate conidia, 13–20 × *c.* 0.5 µm.

Type**: Australia:** Tasmania, South Coast, Prion Beach, 43°32′S, 146°33′E, at sea level, on siliceous rocks, 27 Feb. 1990, *G.Kantvilas 51/90* (holo - HO 00325360).

Thallus epilithic, crustose, effuse, off-white to pale grey or pale grey-brown, patchily pale yellowish brown or rather cream-coloured, dull, continuous to sparingly rimose, smooth to minutely and irregularly uneven, not forming areoles, (0.1–)0.2–0.4(–0.5) mm thick, thickest beneath clusters of ascomata, containing calcium oxalate, ecorticate. *Photobiont Trentepohlia*, dominating a layer *c.* 100 µm thick when adjacent to clusters of ascomata, this subtended by a white, I- medulla 100–300 µm thick; individual cells 10–15 × 8–12 µm, solitary or in filaments of up to six cells; interstitial hyphae 2–3 µm thick. *Prothallus* not apparent. *Ascomata* moderately numerous, lirelliform, solitary or clustered; solitary lirellae brown-black to dull black, semi-immersed in the thallus, occasionally more prominent, to 1 mm long and 0.5 mm wide, simple or sparingly branched, epruinose, with blunt ends and an inconspicuous disc that is usually slit-like or occasionally slightly open; ascomatal clusters prominent on small cushions of thallus tissue, rounded to somewhat irregular, 1–1.5 (–2.5) mm wide, each with up to 3–5(–7) contiguous or overlapping lirellae. *Thalline exciple* absent. *Proper exciple* thick, black, closed below the hypothecium; in solitary ascomata 80–150 µm thick laterally, 140–250 µm thick at the base, K+ greenish when very thinly sectioned. *Epihymenium* hyaline to pale brown, 10–20 µm thick. *Hypothecium* hyaline to pale brown, 25–50 µm thick, inspersed with oil droplets. *Hymenium* 80–120 µm thick, not inspersed with granules or oil droplets, I+ soon becoming red-brown, KI+ medium blue. *Paraphysoids* sparingly branched and anastomosed (especially distally), long-celled, (1–)1.5–2(–2.5) µm thick; apices neither swollen nor pigmented. *Asci* 52–70 × 13–16 µm [*n* = 20], approximating the *grumulosa*-type (after Egea & Torrente 1994): cylindrical, 8-spored, with walls and tholus essentially non-amyloid except for a highly reduced amyloid ring, visible when young surrounding a minute ocular chamber; stalk gradually tapering. *Ascospores* hyaline, 3-septate, biseriate or irregularly massed in the ascus, narrowly oblong to fusiform, slightly to strongly curved (most submature and some mature ascospores straight), not constricted at the septa, (17–) 19.5–*23.3*–27(–28) × (3–)3.5–*3.9*-4.5(–5) µm [*n* = 68]; cells of ± equal size throughout spore ontogeny (i.e. microcephalic); perispore lacking; apices ± rounded, occasionally subacute; contents clear or minutely granular, occasionally guttulate. *Pycnidia* moderately numerous, black, semi-immersed, solitary, convex, conical or hemispherical, *c.* 0.1 mm wide. *Conidia* hyaline, simple, filiform, usually arcuate, 13–20 × *c.* 0.5 µm, with blunt apices. *Chemical composition*: no substances detected by TLC. Figs 1 & 2.

Etymology

The specific epithet, meaning 'southern', alludes to the geographic distribution of the species.

Taxonomic position

Freshly collected specimens (up to 12 months old) appear to be mandatory for obtaining usable DNA extracts from Arthoniales taxa (e.g. see Ertz & Tehler 2010; Frisch *et al.* 2014), and so, not surprisingly, our efforts to obtain molecular data from the single, 35 year-old specimen were unsuccessful. Thus, the taxonomic classification of the new species relies solely on an evaluation of morphological and anatomical characters.

Several genera in the Roccellaceae *s. lat.* develop lirellate ascomata but, in most, including *Enterographa* and some species of *Lecanographa*, *Schismatomma* and *Paralecanographa*, the exciple is not, or only partly or weakly carbonised. However, in both *Gyrographa* and *Vigneronia*, exciple carbonisation is extreme and complete to the extent that several species currently placed in these genera were originally included in *Opegrapha* and removed principally on the basis of molecular data (Ertz *et al.* 2014). These authors referred to them as "roccelloid *Opegrapha* species", differing anatomically from *Opegrapha* by their asci and non-halonate ascospores, and it was on these genera that we concentrated our attention. Both have a carbonised, K± olive exciple and 3-septate, non-halonate ascospores. *Gyrographa* is further characterised by having clustered ascomata with ± open lirellae and a gyrose disc, as well as shortly bacilliform conidia, 4–7 x 0.3–0.8 µm, with gyrophoric acid present in some species (Ertz *et al.* 2014; McCarthy 2022). *Vigneronia* differs by having closed lirellae, a non-gyrose disc and filiform conidia, and its chemistry can include gyrophoric, lecanoric and/or roccellic acids and erythrin; pruinose ascomata are common (Ertz *et al.* 2014, Herrera-Campos *et al.* 2019). In our view, the closed lirellae and filiform conidia of our species suggest its affinities are closest to *Vigneronia*.

Asci have proved to be a very useful diagnostic character in the Roccellaceae since the work of Egea & Torrente (1994), and these have been applied with success in studies of Tasmanian taxa (e.g. Kantvilas 2004). The *grumulosa*-type ascus was first described by Egea & Torrente (1994) and is based on the widespread European/Macaronesian taxon *Paralecanographa grumulosa* (Dufour) Ertz & Tehler (≡ *Lecanographa grumulosa* (Dufour) Egea & Torrente) (see Egea *et al.* 1993; Egea & Torrente 1994). It is cylindrical to narrowly clavate, with a thin, faintly KI+ blue or KI- wall, a slightly thickened tholus and, when young, a small ocular chamber. In young asci, there is a small, faintly amyloid ring enveloping the ocular chamber but, as the ascus develops, this becomes compressed into an amyloid band adjacent to the ascoplasm. This ascus type is illustrated by Egea & Torrente (1994) for *P. grumulosa* and by Kantvilas *et al.* (2020a) for *Angiactis banksiae* (Müll.Arg.) Kantvilas & Stajsic, with the latter source showing the development of the ascus as the amyloid ring becomes compressed.

In the Australian lichen biota, the *grumulosa*-type ascus is also seen in the recently described *Gyrographa fecunda* P.M.McCarthy from eastern New South Wales (McCarthy 2022). Unfortunately, in describing *Vigneronia*, Ertz *et al.* (2014) did not describe the asci in detail, whereas Herrera-Campos *et al.* (2019) provided only the most cursory and to some extent ambiguous description. Having discounted *Gyrographa* on anatomical/morphological grounds, we also briefly considered *Lecanographa* as a placement for the new

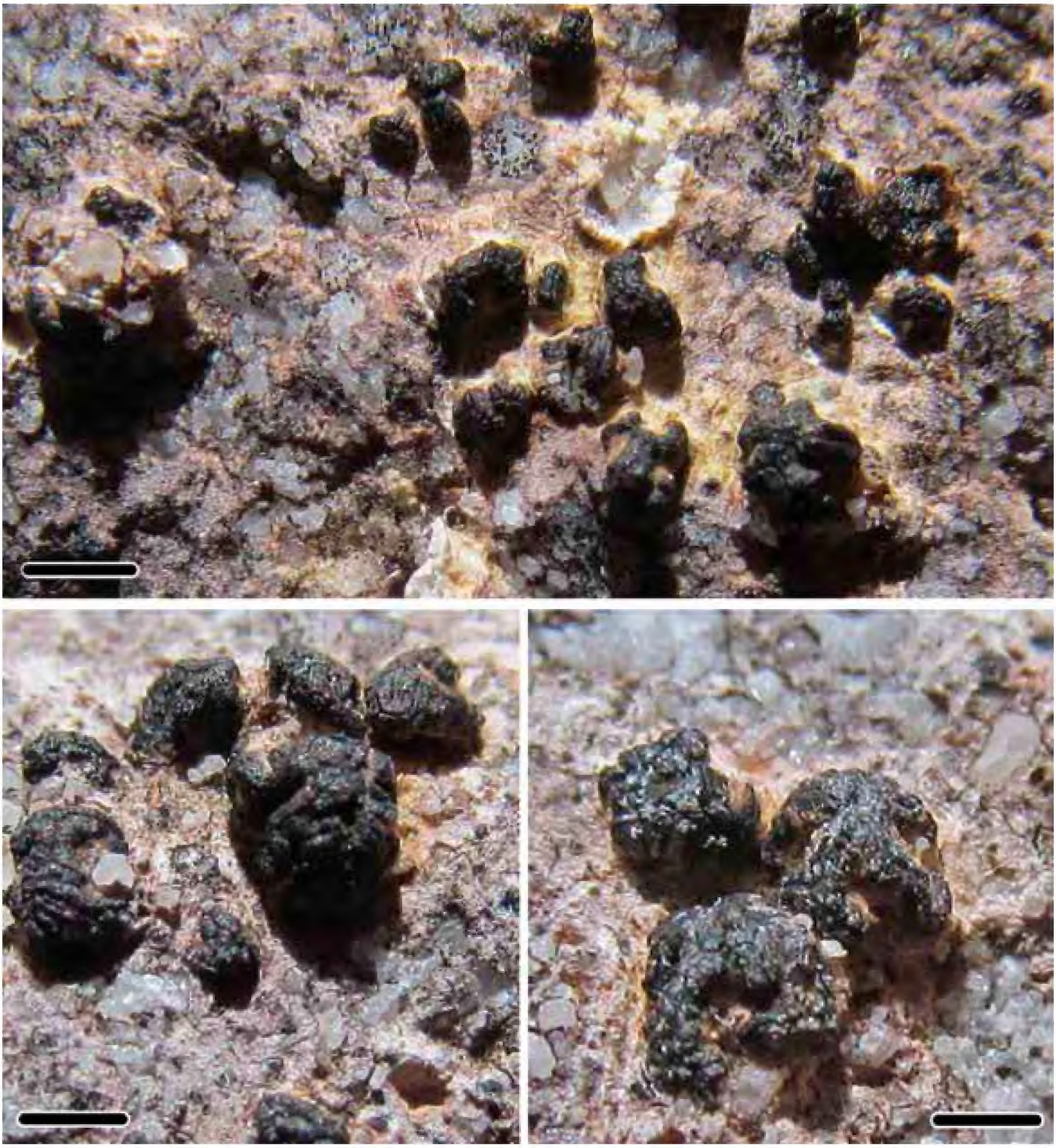

Figure 1. *Vigneronia meridionalis* (holotype). Thalli and mainly clustered ascomata. Scales: 1 mm.

species, not least because it is already represented in Australia by two taxa (McCarthy 2023). However, in this genus, as represented by the *L. lyncea* (Sm.) Egea & Torrente (the type species) as well as by the Tasmanian endemic *L. nothofagi* Kantvilas, the asci differ by lacking an amyloid ring throughout all stages of development. Thus, in the absence of any contradictory information, we elect to describe the new species in *Vigneronia* as a genus of best fit.

In contrast with the Tasmanian lichen, the other five known species of *Vigneronia* are corticolous in tropical and subtropical latitudes, and all display distinctive and quite different combinations of thallus chemical composition, ascomatal morphology and anatomy, as well as excipular, hymenial and ascospore dimensions. Thus, *V. spieri* (Aptroot & Sparrius) Ertz & Bungartz, *V. cypressi* (R.C.Harris) Ertz & Tehler and *V. mexicana* Herrera-Campos *et al*. all have thickly pruinose ascomata

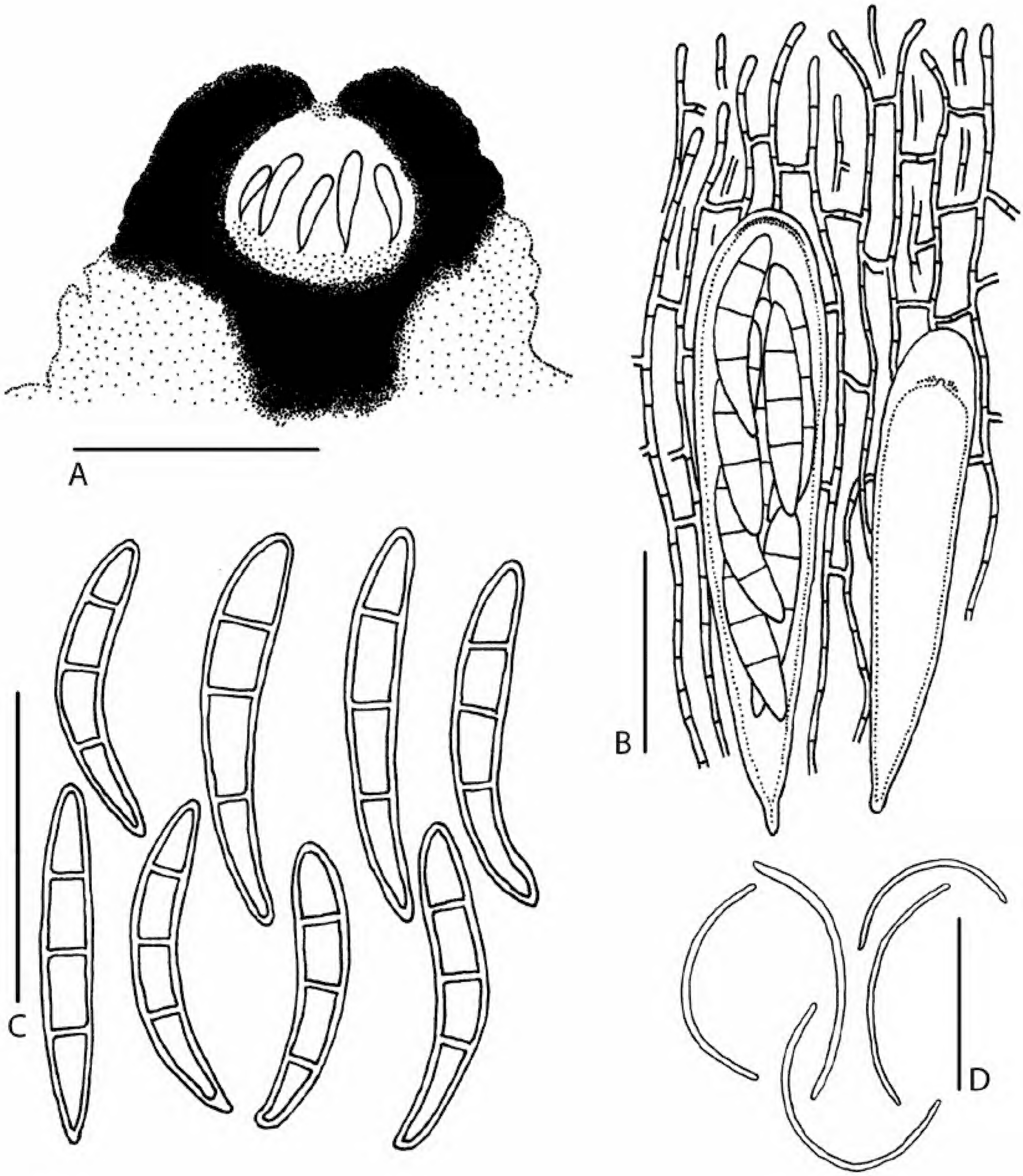

Figure 2. *Vigneronia meridionalis* (holotype). A: Sectioned ascoma (semi-schematic); B: Mature and immature asci and paraphysoids, with amyloid parts stippled; C: Ascospores; D: Conidia. Scales: A = 0.2 mm; B, C = 20 µm; D = 10 µm.

and contain erythrin with roccellic (±) and gyrophoric acids, roccellic acid (±) or lecanoric acid respectively (Ertz *et al.* 2015; Herrera-Campos *et al.* 2019). *Vigneronia robustula* (Nyl.) Ertz & Tehler and *V. caceresiana* (Kalb & Aptroot) Lücking & Herrera-Campos also have pruinose ascomata, but their chemical composition has not been determined (Ertz *et al.* 2015; Herrera-Campos *et al.* 2019). In this context, the new Tasmanian species is characterised by a unique suite of characters.

Distribution and ecology

The single specimen of *Vigneronia meridionalis* was collected fortuitously on siliceous, seashore rocks on Tasmania's remote South Coast and, despite extensive exploration of Tasmania's lichen flora, it has not been seen subsequently. The collection is from coarse, metamorphosed sedimentary rock, the type that characterises much of Tasmania's South-West. As no further ecological information can be gleaned from the specimen, this species remains one of several remarkable, rare or overlooked taxa that is known only from the type specimen. Although several other lirellate, saxicolous lichens (e.g. *Enterographa ophiolithica* Kantvilas, *Opegrapha spodopolia* Nyl.) can occur in littoral habitats in Tasmania, especially in sheltered overhangs, none are likely to be confused with the new species due to their ascospores having more than three septa.

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Nomenclatural citations must follow the rules and recommendations of the most recent *International Code of Nomenclature for Algae, Fungi and Plants*. Book titles must be abbreviated following *Taxonomic Literature II* (Stafleu & Cowan 1976–1986), and journal citations in the synonymy must follow *Botanico-Periodicum-Huntianum* (Lawrence et al. 1968). Authors' names must follow *Authors of Plant Names* (Brummitt & Powell 1992) and should have minimal spacing. Designations of herbaria should follow *Index Herbariorum* (Thiers 2020+). Homotypic synonyms are to be included in one paragraph, listed in chronological order. Heterotypic synonyms should follow chronologically in separate paragraphs. Misapplied names should follow the heterotypic synonyms.

References should be cited in text as, e.g. Walsh (1992), Brown and Murphy (2004); for three or more authors use *et al*. Within parentheses, cite multiple references in order of publication: (Kuntze 1891; Lawrence *et al*. 1968; Allan 1979, 2000; Jarman 1990; Lewis and Entwisle 1995a, 1995b). Measurements should be in SI units. Use an en-dash (–), not a hyphen, between spans of numbers, and use a multiplication sign (×), not the letter 'x', where appropriate. Scientific names at generic rank and below must be accompanied by the nomenclatural authorities when first introduced in the main text.

Figures, tables and appendices. Do not embed images in the text. Illustrations (photographs, line art, graphs and maps) should be in TIFF, PNG, or JPEG format only and must be at least 300 dpi at print resolution. Figures and tables may be single (7 cm) or double (14 cm) column width, full page length (21 cm), or in landscape format (21 x 14 cm)

Illustrations require either a scale bar or an indication of the magnification in the caption. Figure, table and appendix captions should be listed after the references.

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Contents

Vol 43, 2025

Contributed papers Page

Olearia apiculata (Asteraceae), a new species endemic to the Central Tablelands of New South Wales 3
Andre Messina

Synonymisation of *Erigeron conyzoides* under *E. acris* (Asteraceae: Astereae), with a key to Australian *Erigeron* 9
Alexander N. Schmidt-Lebuhn, Stephanie H. Chen

Voyage in search of *Aseroe* (Fungi: Phallaceae): historical and nomenclatural secrets revealed and controversies solved for the iconic Australasian species *Aseroe rubra* 17
Luis A. Parra, Philip Rogosky and Tom W. May

A remarkable species of *Vigneronia* (Roccellaceae *s. lat.*) from the remote southern coast of Tasmania 72
Gintaras Kantvilas, Patrick M. McCarthy and Cécile Gueidan